TABLE 11. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR COLBERT L-4 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	61	64	41	8
Percent of Total Months	98%	87%	63%	40%
Number of Months With Slagging Outages	1	10	24	12
Percent of Total Months	2%	14%	37%	60%
Total Months	62	74	65	20
		Coal Sulfur		
Number of Months Without Slagging Outages	6	13	75	80
Percent of Total Months	86%	87%	93%	68%
Number of Months With Slagging Outages	1	2	6	38
Percent of Total Months	14%	13%	7%	32%
Total Months	7	15	81	118
	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	60	68	46	
Percent of Total Months	83%	79%	73%	
Number of Months With Slagging Outages	12	18	17	
Percent of Total Months	17%	21%	27%	
Total Months	72	86	63	

TABLE 12. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR CUMBERLAND 1-2 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	5	5	32	4
Percent of Total Months	100%	39%	51%	100%
Number of Months With Slagging Outages	0	8	31	0
Percent of Total Months	0%	62%	49%	0%
Total Months	5	13	63	4
		Coal Sulfur		
Number of Months Without Slagging Outages	46	0		
Percent of Total Months	55%	0%		
Number of Months With Slagging Outages	38	1		
Percent of Total Months	45%	100%		
Total Months	84	1		
	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	36	9	1	
Percent of Total Months	56%	47%	50%	
Number of Months With Slagging Outages	28	10	1	
Percent of Total Months	44%	53%	50%	
Total Months	64	19	2	

TABLE 13. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR JOHNSONVILLE 1-6 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	54	72	26	17
Percent of Total Months	98%	92%	72%	33%
Number of Months With Slagging Outages	1	6	10	34
Percent of Total Months	2%	8%	28%	67%
Total Months	55	78	36	51
		Coal Sulfur		
Number of Months Without Slagging Outages	7	26	93	43
Percent of Total Months	39%	67%	82%	88%
Number of Months With Slagging Outages	11	13	21	6
Percent of Total Months	61%	33%	18%	12%
Total Months	18	39	114	49
	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	127	39	3	
Percent of Total Months	87%	61%	30%	
Number of Months With Slagging Outages	19%	25	7	
Percent of Total Months	13%	39%	70	
Total Months	146	64	10	

TABLE 14. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR JOHNSONVILLE 7-10 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
			Coal Ash	
Number of Months Without Slagging Outages	56	73	39	27
Percent of Total Months	100%	99%	85%	60%
Number of Months With Slagging Outages	0	1	7	18
Percent of Total Months	0%	1%	15%	40%
Total Months	56	74	46	45
			Coal Sulfur	
Number of Months Without Slagging Outages	7	34	102	52
Percent of Total Months	44%	85%	91%	98%
Number of Months With Slagging Outages	9	6	10	1
Percent of Total Months	56%	15%	9%	2%
Total Months				
	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	48	64	57	26
Percent of Total Months	89%	79%	95%	100%
Number of Months With Slagging Outages	6	17	3	0
Percent of Total Months	11%	21%	5%	0%
Total Months	54	81	60	26

TABLE 15. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR KINGSTON 1-4 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	28	27	37	89
Percent of Total Months	100%	100%	88%	72%
Number of Months With Slagging Outages	0	0	5	35
Percent of Total Months	0%	0%	12%	28%
Total Months	28	27	42	124
		Coal Sulfur		
Number of Months Without Slagging Outages	180	0	1	
Percent of Total Months	82%	0%	100%	
Number of Months With Slagging Outages	40	0	0	
Percent of Total Months	18%	0%	0%	
Total Months	220	0	1	
	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	85	55	38	3
Percent of Total Months	88%	76%	76%	100%
Number of Months With Slagging Outages	11	17	12	0
Percent of Total Months	12%	24%	24%	0%
Total Months	96	72	50	3

TABLE 16. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR PARADISE 1-2 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	124	12	0	
Percent of Total Months	75%	46%	0%	
Number of Months With Slagging Outages	42	14	2	
Percent of Total Months	25%	54%	100%	
Total Months	166	26	2	
		Coal Sulfur		
Number of Months Without Slagging Outages	131	5		
Percent of Total Months	69%	100%		
Number of Months With Slagging Outages	58	0		
Percent of Total Months	31%	0%		
Total Months	189	5		

	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	39	35	46	16
Percent of Total Months	68%	66%	71%	84%
Number of Months With Slagging Outages	18	18	19	3
Percent of Total Months	32%	34%	29%	16%
Total Months	57	53	55	19

TABLE 17. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR PARADISE 3 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	3	26	43	10
Percent of Total Months	100%	87%	78%	44%
Number of Months With Slagging Outages	0	4	12	13
Percent of Total Months	0%	13%	22%	57%
Total Months	3	30	55	23
		Coal Sulfur		
Number of Months Without Slagging Outages	27	55	0	
Percent of Total Months	82%	71%	0%	
Number of Months With Slagging Outages	6	22	1	
Percent of Total Months	18%	29%	100%	
Total Months	33	77	1	

	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	51	24	7	
Percent of Total Months	70%	83%	78%	
Number of Months With Slagging Outages	22	5	2	
Percent of Total Months	30%	17%	22%	
Total Months	73	29	9	

TABLE 18. ANALYSIS OF SLAGGING OUTAGES AND DERATING FOR SHAWNEE 1-10 AS RELATED TO COAL ASH AND SULFUR AND FIRING RATE

	Less Than Design	Design to Design + 10 Percent	Design + 10 Percent to Design + 20 Percent	Design + 20 Percent to Greater Values
		Coal Ash		
Number of Months Without Slagging Outages	114	8	9	35
Percent of Total Months	98%	73%	29%	56%
Number of Months With Slagging Outages	2	3	22	28
Percent of Total Months	2%	27%	71%	33%
Total Months	116	11	31	63
		Coal Sulfur		
Number of Months Without Slagging Outages	140	24	2	
Percent of Total Months	81%	67%	17%	
Number of Months With Slagging Outages	33	12	10	
Percent of Total Months	19%	33%	83%	
Total Months	173	36	12	
	Firing Rate Less Than 70 Percent of Rated	Firing Rate of 70 to 85 Percent of Rated	Firing Rate of 85 to 100 Percent of Rated	Firing Rate Over 100 Percent of Rated
Number of Months Without Slagging Outages	7	59	95	5
Percent of Total Months	78%	69%	79%	100%
Number of Months With Slagging Outages	2	27	26	0
Percent of Total Months	22%	31%	22%	0%
Total Months	9	86	121	5

Thus, for this group of units the liklihood of one or more slagging outages occurring during a given month increased by 55 percent, by 266 percent, and by 366 percent as the average coal ash increased from less than design to 0 th 10 percent above design, 10 to 20 percent above design, and 20 plus percent above design, respectively.

Considering the effect of coal sulfur on slagging outages, increases in the sulfur content of the coal fired did not appear to increase the likelihood of slagging outages. In fact, for some groups of units, an increase in sulfur appeared to reduce the occurrence of slagging outages. This result probably reflects the fact that coal sulfur may have been increased at times when coal ash decreased. Thus, the true effect of coal sulfur is not shown.

The above results raise questions regarding popular slagging indices that include coal sulfur term but ignore the quantity of coal ash.

Although increased load is known to increase the liklihood of a furnace slagging, the results tabulated in Tables 11 through 18 do not reflect this. The likely explanation is that the average monthly firing rate, which is the value plotted in Tables 11 through 18, is not necessarily a suitable indication of load.

The analysis of various outages related to coal characteristics is continuing.

Maintenance Costs

Coal characteristics are one factor that may impact on maintenance costs for power plants. Other factors that may influence these costs include:

1. load and load cycle
2. period between overhauls (or major outages)
3. equipment design.

Load and load cycle affect the degree to which plant facilities are pushed, and available time for maintenance. If a boiler is base loaded around the clock, there is going to be little time to do preventive or minor maintenance that requires equipment to be idle. Conversely, if a boiler is off-line for regular intervals, say each weekend, such maintenance can be preformed, thus reducing the likelihood of major problems resulting from neglect of minor problems.

The interval between major outages for equipment overhaul would seem likely to affect maintenance costs, but the effect is uncertain. For some equipment, it is likely that longer major outage intervals will result in the equipment receiving one or more "quick-fixes" or patches before being replaced or rebuilt during an outage. Thus, the total manpower invested in the equipment may be higher for longer major outage intervals. Conversely, some maintenance costs might be increased when outage intervals are more frequent in that worn but serviceable equipment is replaced while convenient (during the outage), rather than risk a forced outage later.

Equipment design can be a major influence on maintenance costs, especially when comparing costs among plants with different equipment. The original pulverizers at Cumberland were difficult to overhaul and required more manpower than similarly sized pulverizers of a different design at Bull Run.

In spite of the difficulties introduced by these non-coal factors, it is important that the impact of coal characteristics on maintenance costs be considered. An analysis has been made of the relationship (if any) of selected maintenance costs to coal ash and sulfur for 10 TVA power plants. The maintenance cost categories included in this analysis are those listed in Table 5. The following paragraphs describe details of the procedures used in the analysis and results.

Adjusting Costs to Constant Dollars

The annual costs recorded for the various maintenance accounts selected for analyses appear on TVA's accounting records in dollars of the year they were incurred. In order to establish a reasonable basis for comparing these costs, the costs first had to be adjusted to constant year dollars. The year 1978 was selected for comparison since that was the most recent year for which all cost information and comparable coal data were available. To accomplish this, a large sample of the accounts were examined to determine the relative amounts of labor by category, as well as the materials and services by type.

In the case of labor, data were obtained from TVA regarding their actual yearly cost experience during the period of 1961 through 1978 for the labor classifications of Salary Policy, Trades and Labor Annual, and Trades and Labor Hourly. From this history, adjustment factors were developed to convert prior years' labor costs to 1978 dollars for each of these labor classifications. Then, based upon the typical mix of these classifications, as determined from the sampling of maintenance accounts, a composite set of labor adjustment factors was developed.

In the case of the materials and services, the Handy-Whitman Index of Public Utility Construction Costs was applied for those categories applicable to the maintenance cost accounts selected for analysis. From the cost index numbers in Handy-Whitman, a series of adjustment factors were developed to convert prior years' materials and service costs to 1978 dollars.

Using the set of labor adjustment factors for all classifications and the appropriate set of material and services adjustment factors, a group of four composite adjustment indices were developed. These were titled Boilers and Accessories, Coal and Ash Handling Hardware and Equipment, Fans and Motors, and Steam Piping and Hardware. By applying the most appropriate of these indices to each TVA maintenance cost account of interest, the stream of multi-year dollars recorded in the TVA maintenance cost accounts was adjusted to 1978 dollars.

Analysis Procedure

Annual maintenance costs (adjusted in 1978 dollars) for various categories of equipment were compared to the quantity of coal ash and/or sulfur supplied to the unit per unit time (one year increments). Simple linear regression analysis techniques were used to fit straight lines to the data. The slope of lines and correlation coefficients were determined. Finally, the correlation coefficients and number of data points involved were evaluated with regard to significance level. Significance levels of 0.01 and 0.05 express a 99 or 95 percent degree of confidence, respectively, that the variables are related, and that the apparent relationship is not due to random chance.

Finally, the slopes of costs versus ash and sulfur were converted to units of costs per ton of coal fired per one percent change in the ash or sulfur content of the coal.

Results

Figures 16 through 41 present results of the analysis of maintenance costs versus coal ash, sulfur, and ash plus sulfur for 10 TVA plants. (Allen was omitted because of the short history of firing on coal alone; Watts Bar was omitted because of its uniqueness, being TVA's only wet bottom unit, much smaller than other TVA units, and considerably older than other TVA units.)

Each of the figures shows the apparent increase (or decrease) in maintenance costs in cents per ton of coal fired associated with a one percent increase in coal ash (say from 12 to 13 percent) or in coal sulfur (say from 3.0 to 4.0 percent). The tinting of the bars reflects the degree of confidence that the result is due to a real relationship between maintenance costs and coal properties, as opposed to random data. The darker bars show a 99 percent confidence level, the medium bars a 95 percent confidence level, and the lighter bars less than a 95 percent confidence level.

Operating Costs

Difficulty has been encountered in identifying operating costs that fit both of the criteria of:

1. available
2. relationship to coal characteristics.

Few labor costs are directly attributable to operation (when maintenance is excluded), and other data (pulverizer power, etc.,) may not be readily available.

Since operating costs (especially labor) seem to be only a small fraction of maintenance costs, they may not be especially important. However, a continued effort is being made in the operating cost area; the degree of success of these efforts is not predictable.

Text continues on page 96.

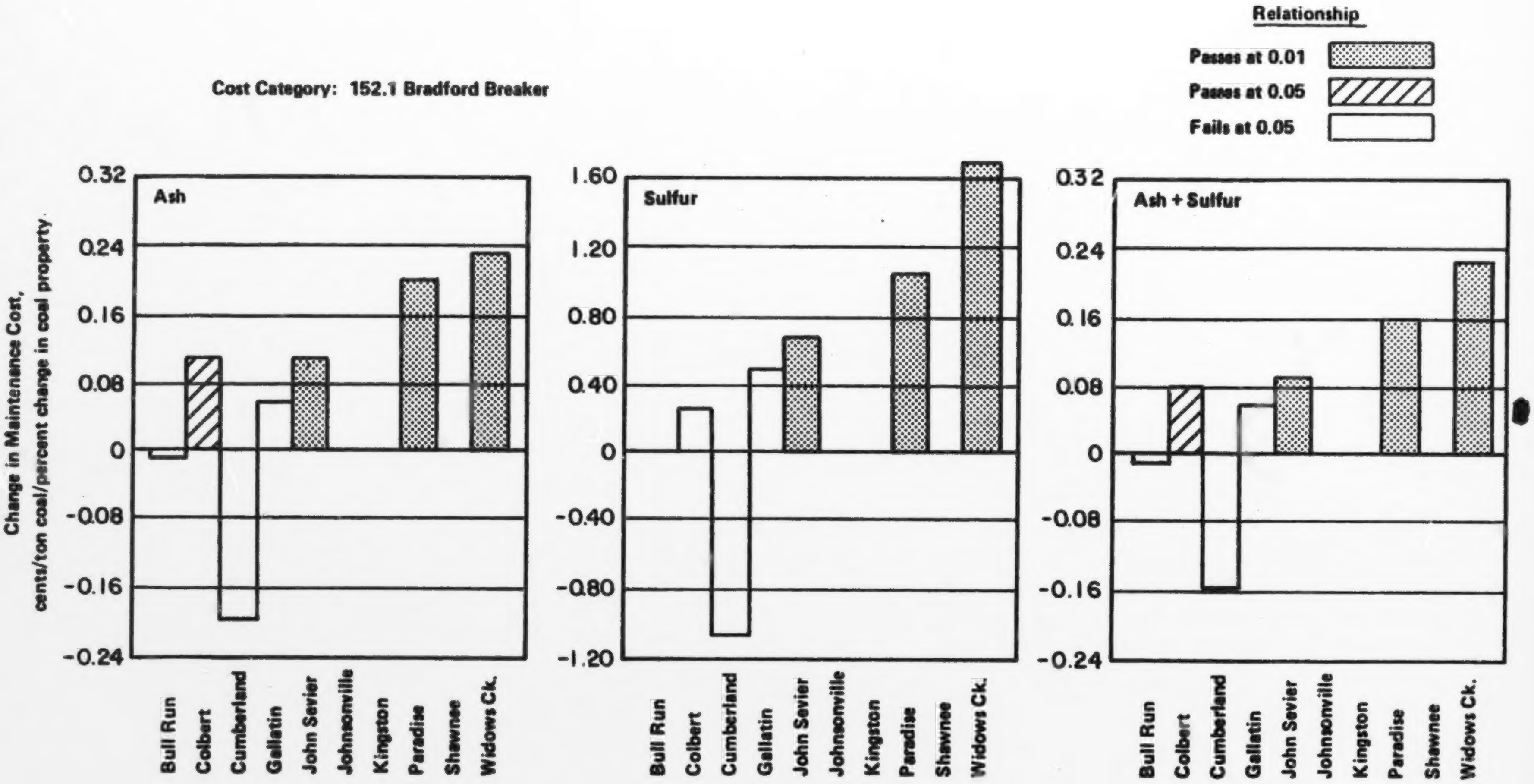

FIGURE 16. MAINTENANCE COSTS FOR BRADFORD BREAKERS AS RELATED TO COAL ASH AND SULFUR

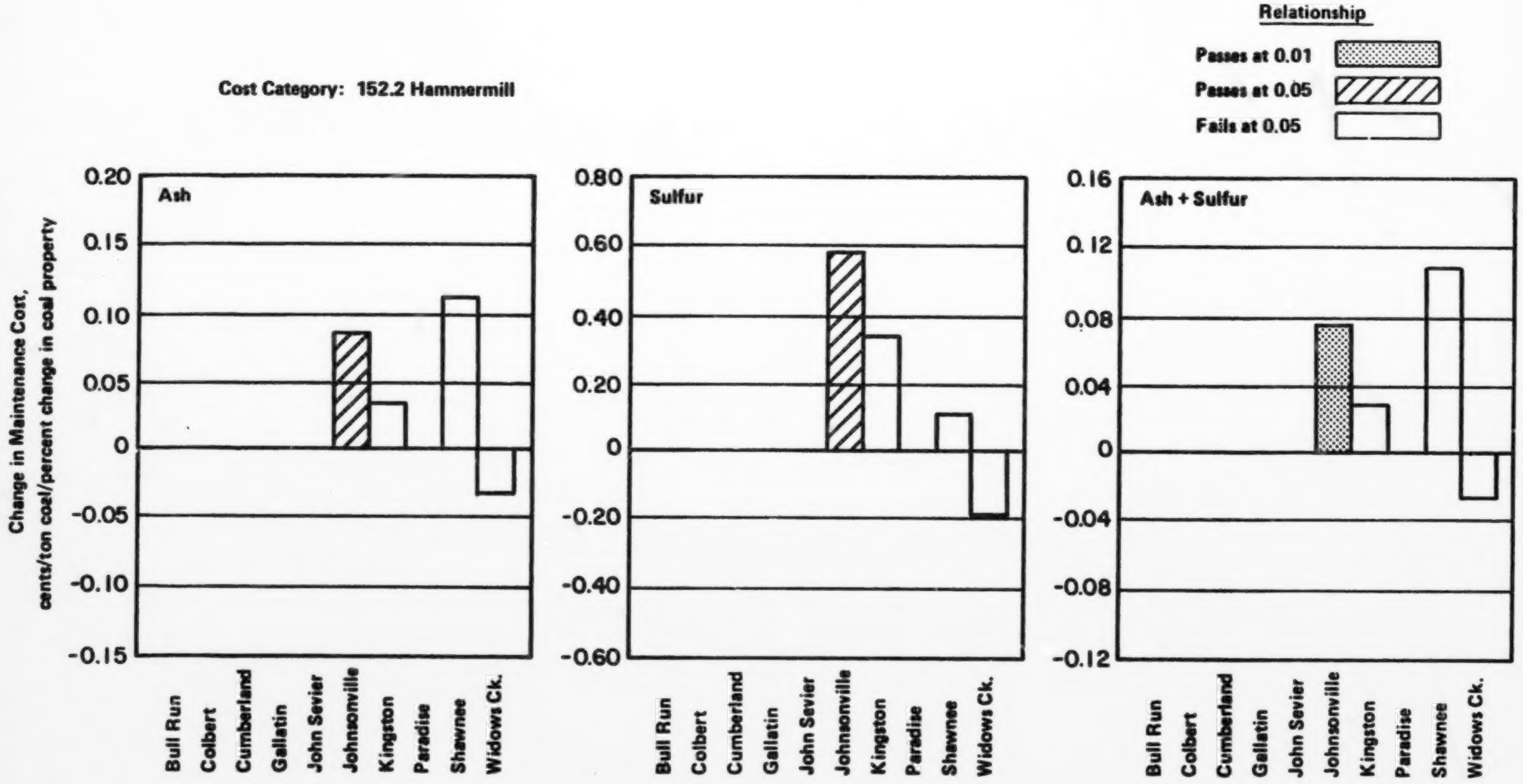

FIGURE 17. MAINTENANCE COSTS FOR HAMMERMILLS AS RELATED TO COAL ASH AND SULFUR

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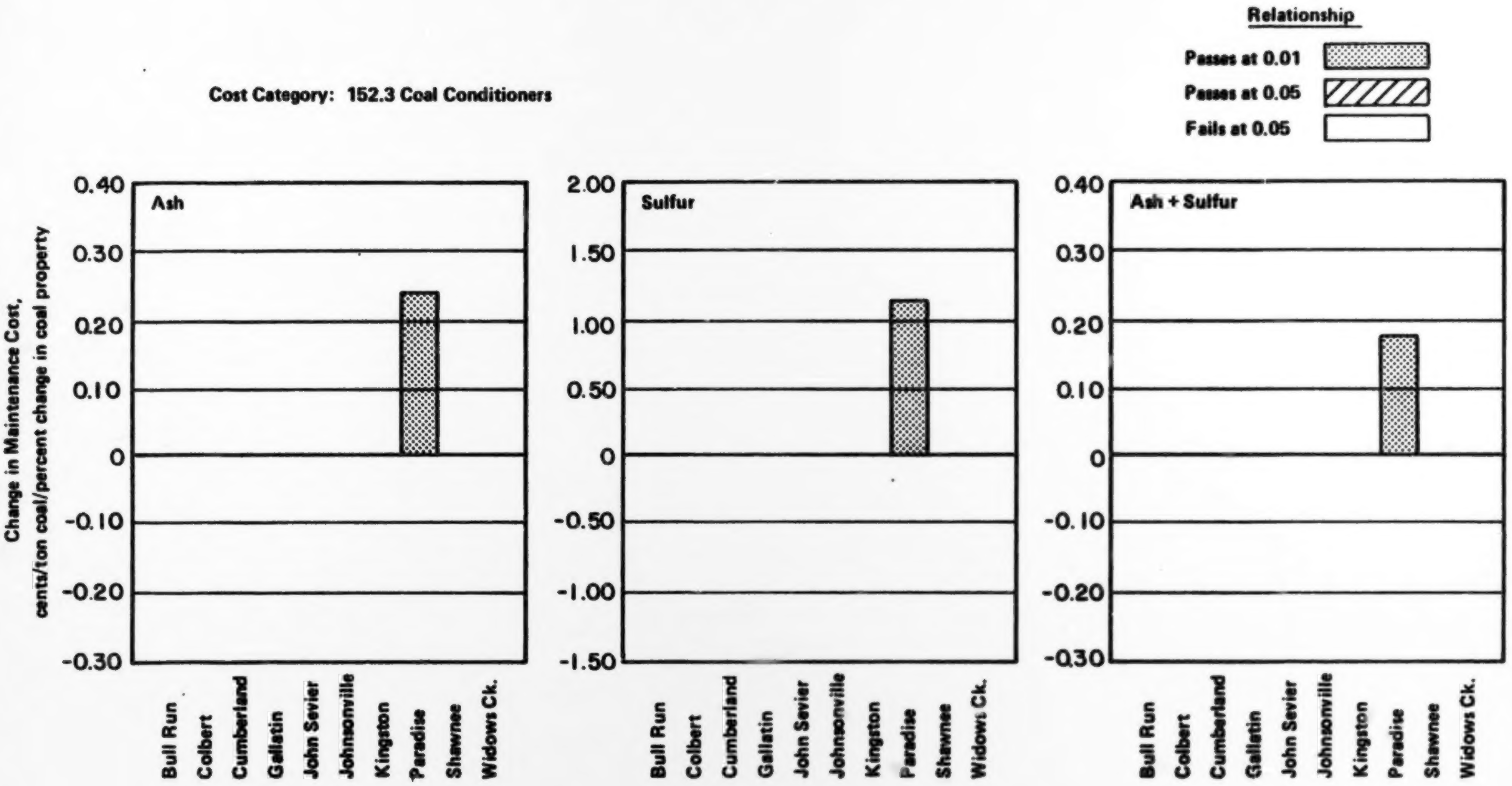

FIGURE 18. MAINTENANCE COSTS FOR COAL CONDITIONERS AS RELATED TO COAL ASH AND SULFUR

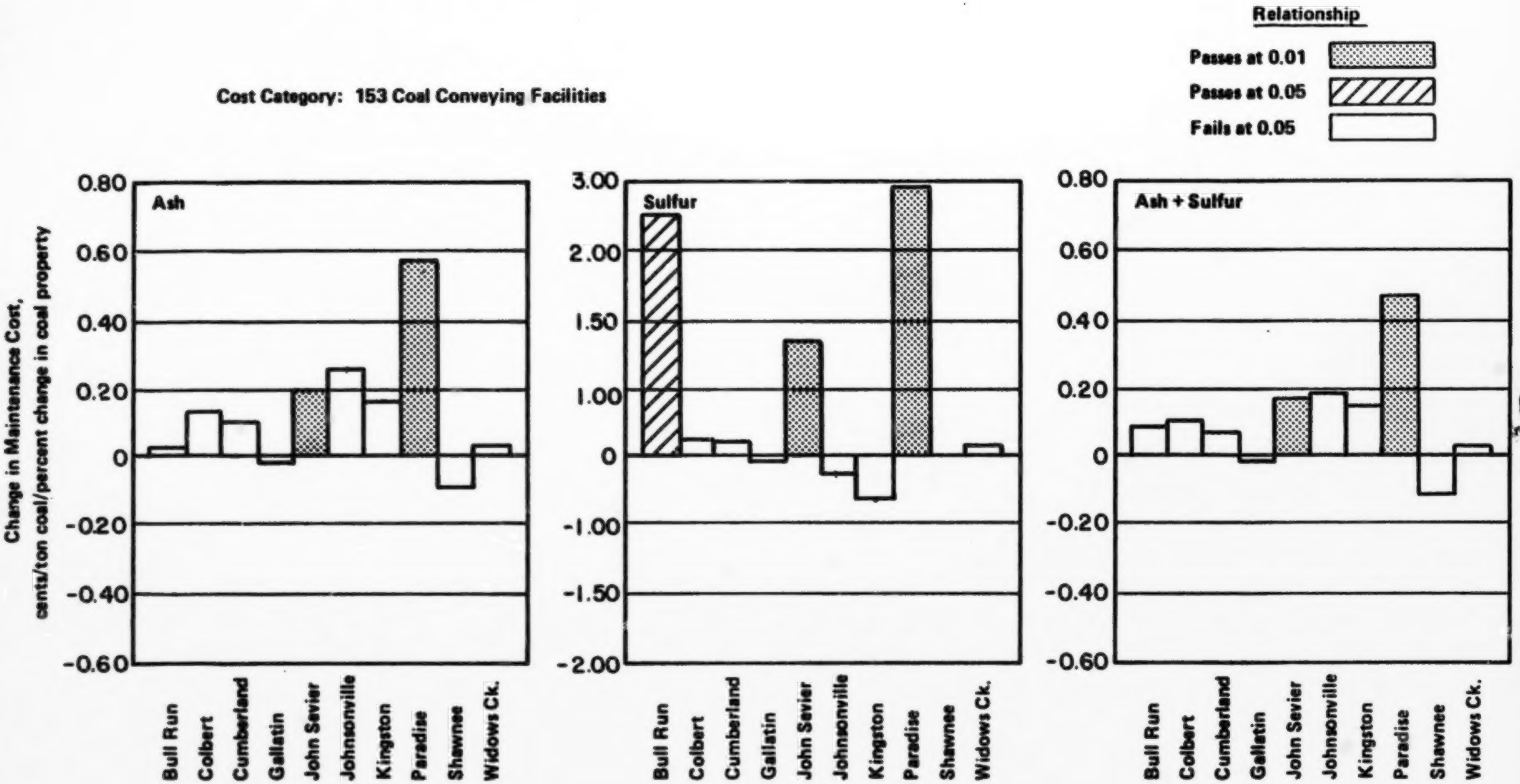

FIGURE 19. MAINTENANCE COSTS FOR COAL CONVEYING FACILITIES AS RELATED TO COAL ASH AND SULFUR

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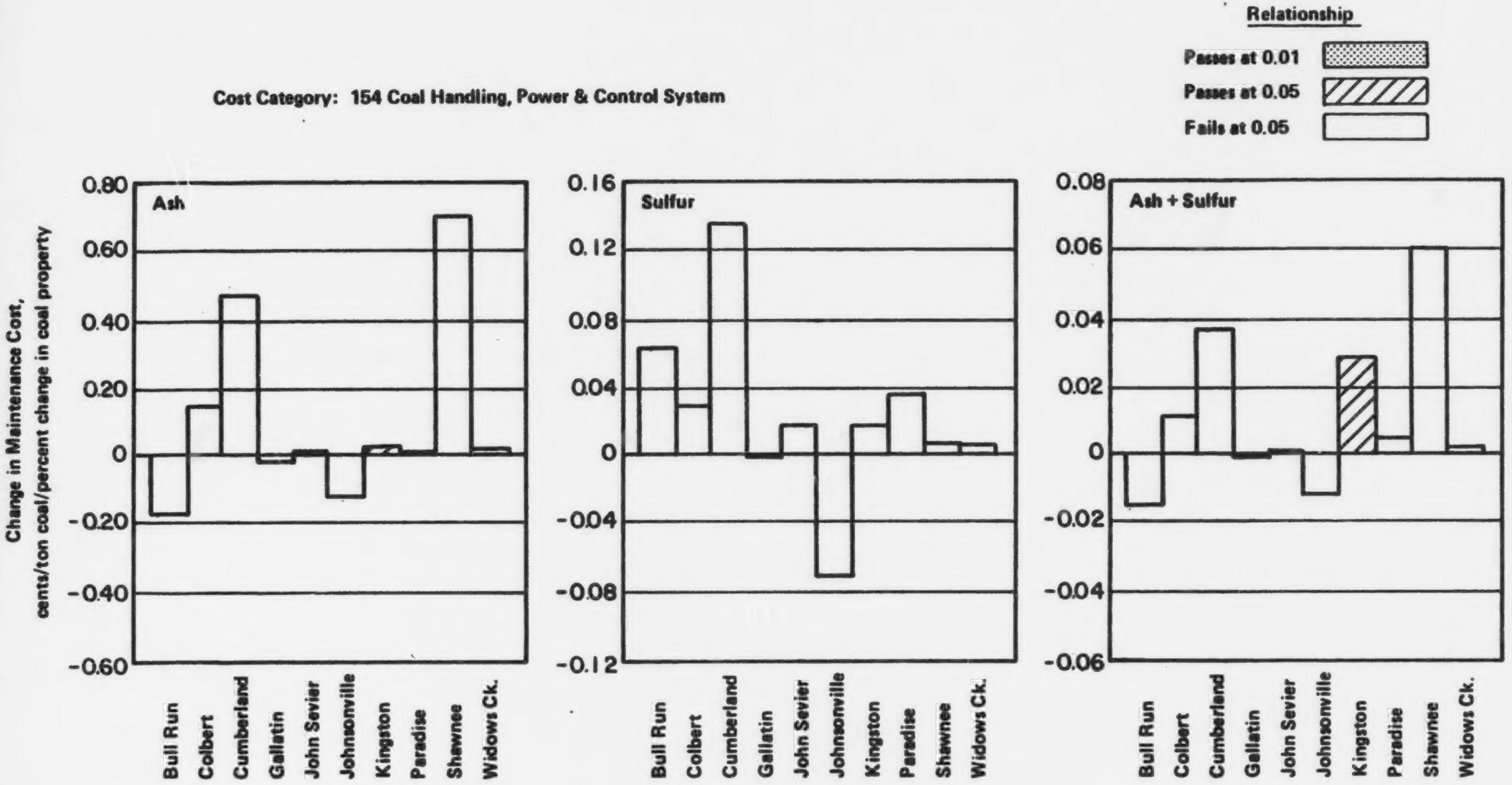

FIGURE 20. MAINTENANCE COSTS FOR COAL HANDLING POWER AND CONTROL SYSTEMS AS RELATED TO COAL ASH AND SULFUR

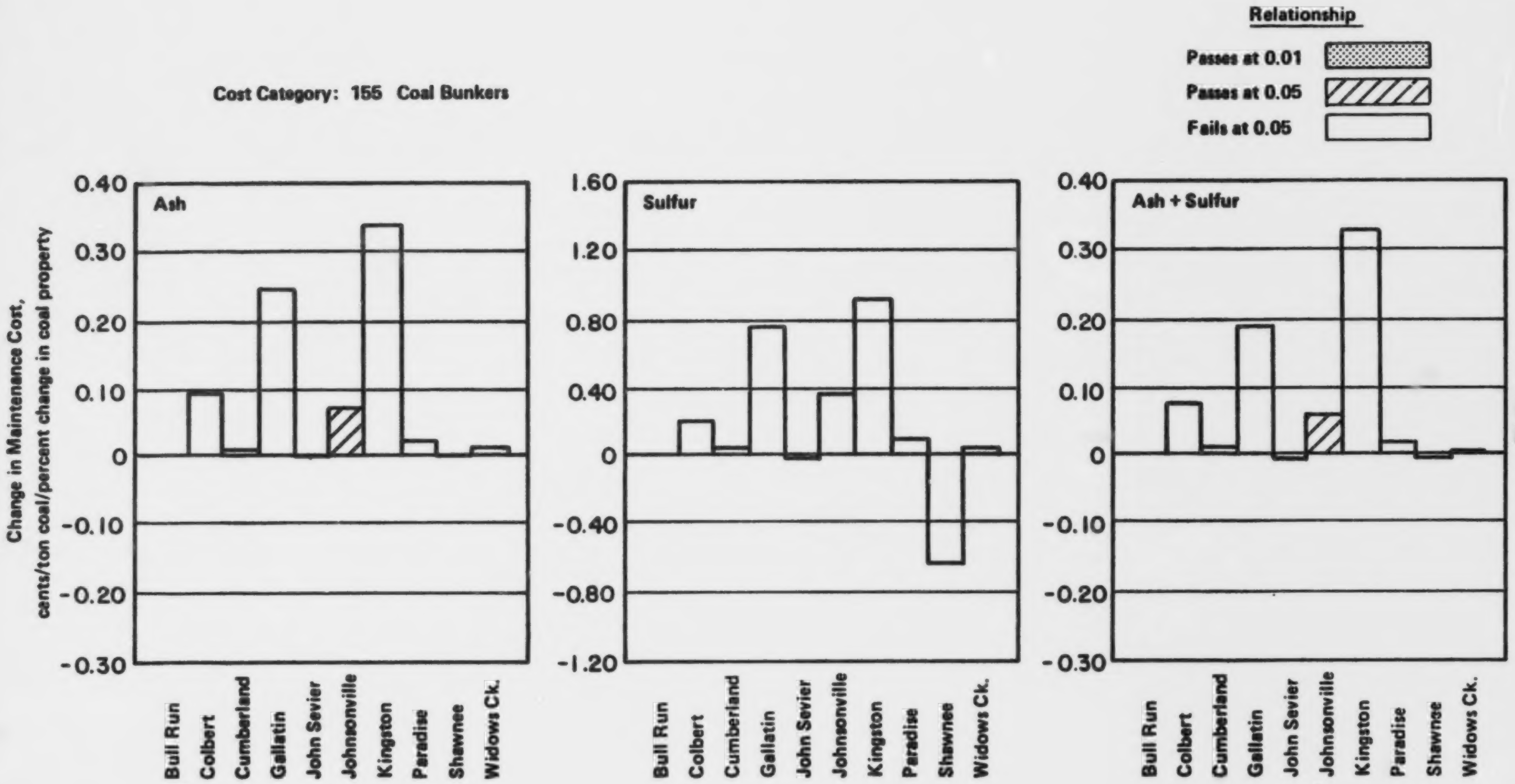

FIGURE 21. MAINTENANCE COSTS FOR COAL BUNKERS AS RELATED TO COAL ASH AND SULFUR

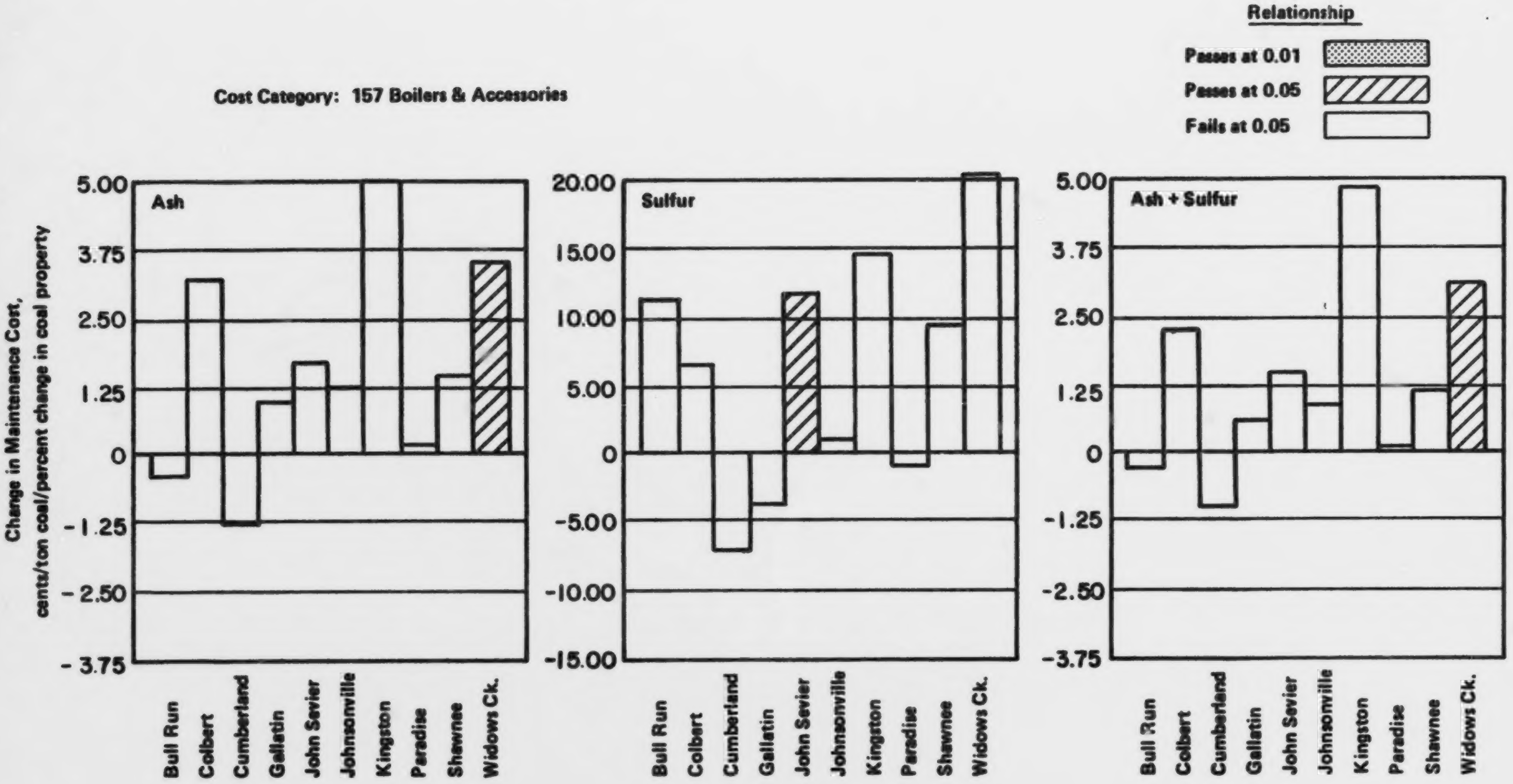

FIGURE 22. MAINTENANCE COSTS FOR BOILERS AND ACCESSORIES AS RELATED TO COAL ASH AND SULFUR

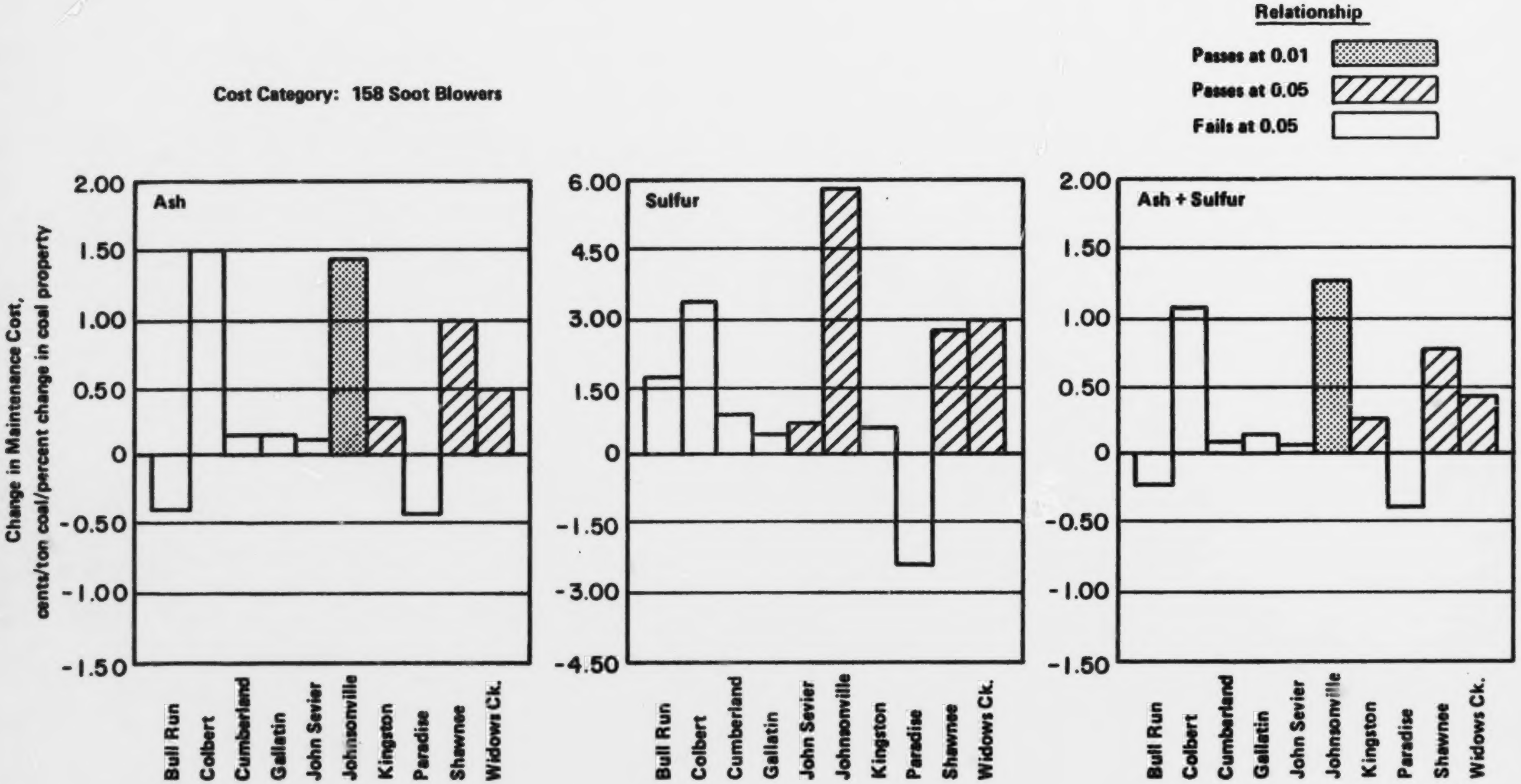

FIGURE 23. MAINTENANCE COSTS FOR SOOT BLOWERS AS RELATED TO COAL ASH AND SULFUR

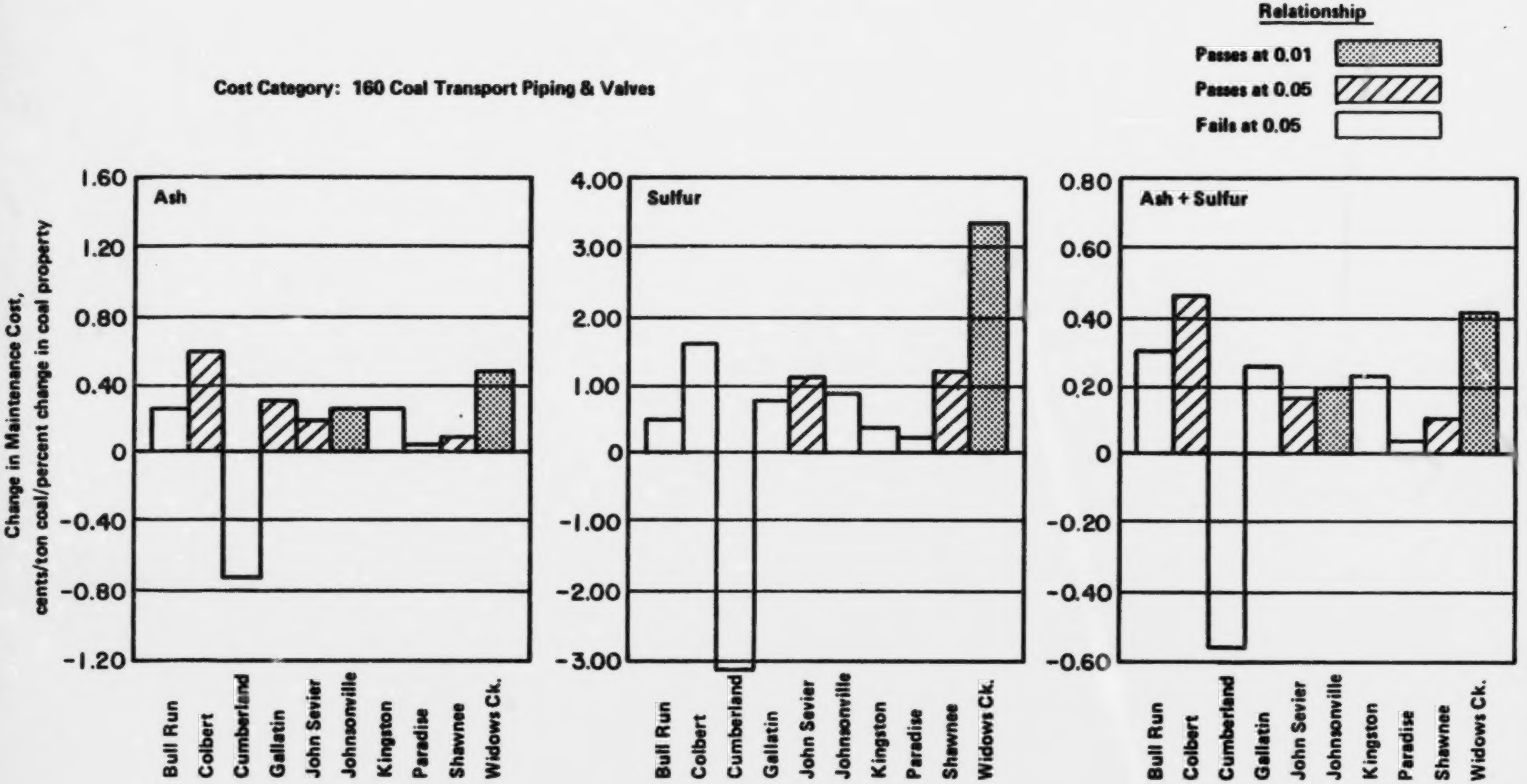

FIGURE 24. MAINTENANCE COSTS FOR COAL TRANSPORT PIPING AND VALVES AS RELATED TO COAL ASH AND SULFUR

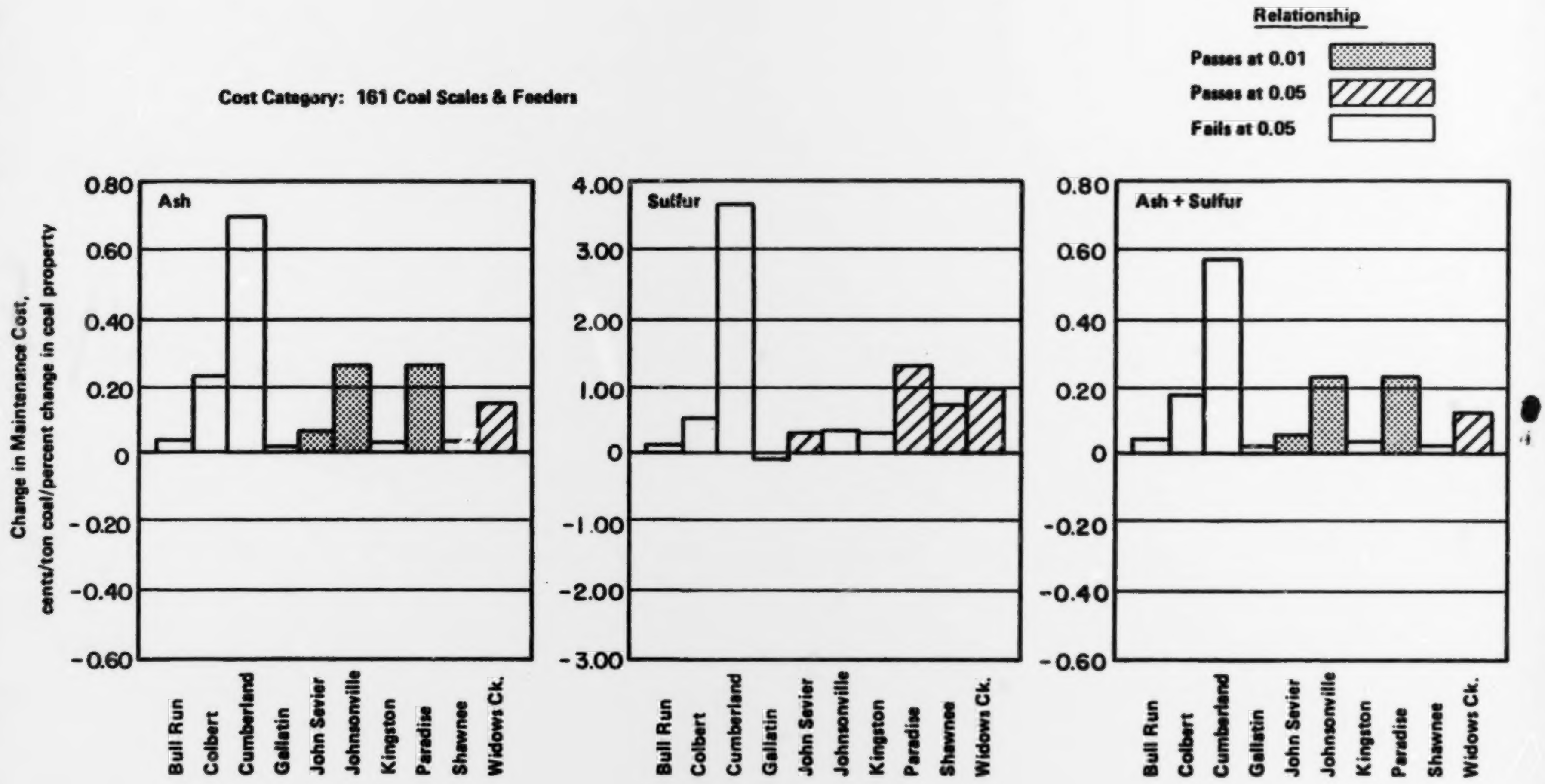

FIGURE 25. MAINTENANCE COSTS FOR COAL SCALES AND FEEDERS AS RELATED TO COAL ASH AND SULFUR

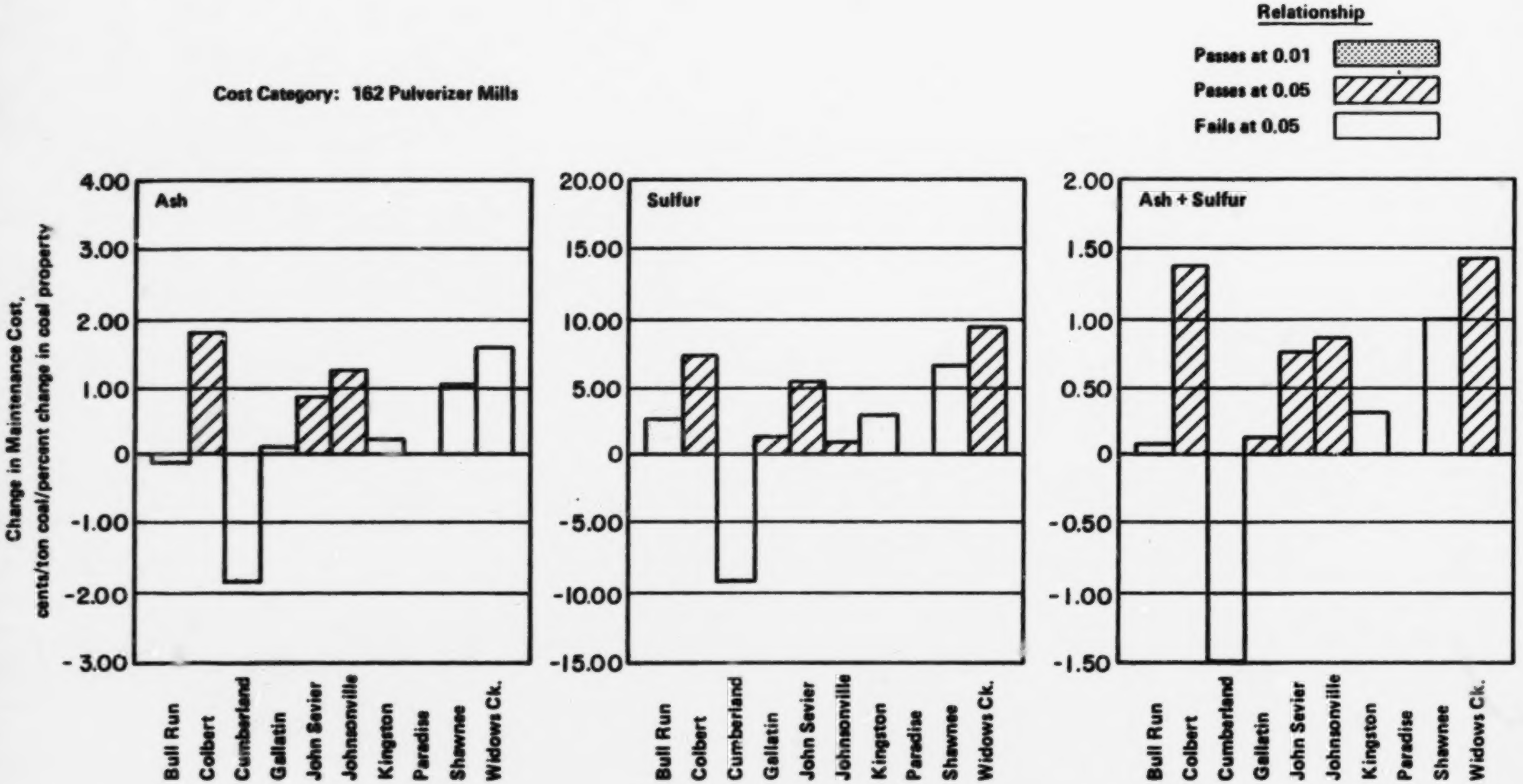

FIGURE 26. MAINTENANCE COSTS FOR PULVERIZER MILLS AS RELATED TO COAL ASH AND SULFUR

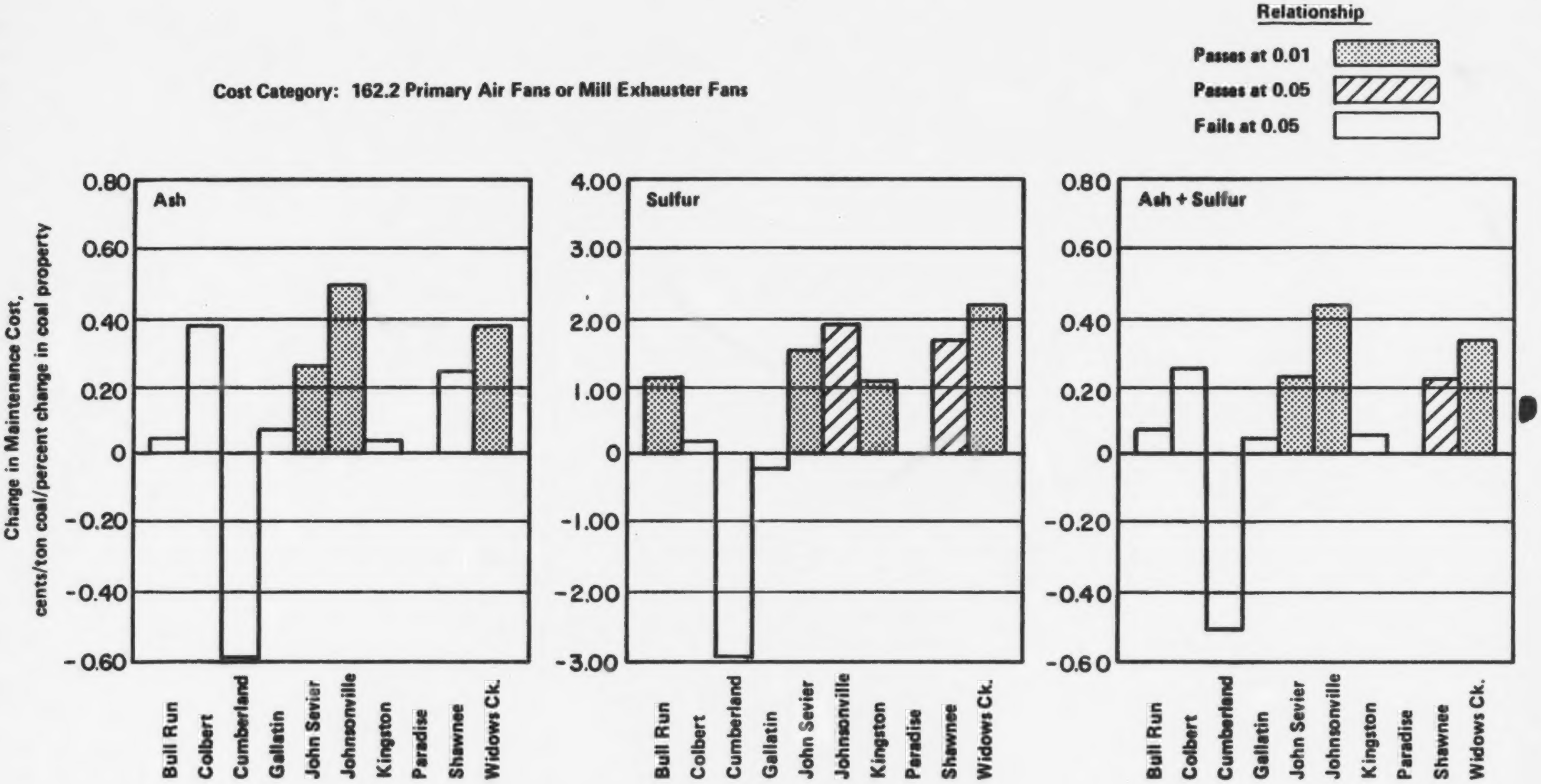

FIGURE 27. MAINTENANCE COSTS FOR PRIMARY AIR FANS OR MILL EXHAUSTER FANS AS RELATED TO COAL ASH AND SULFUR

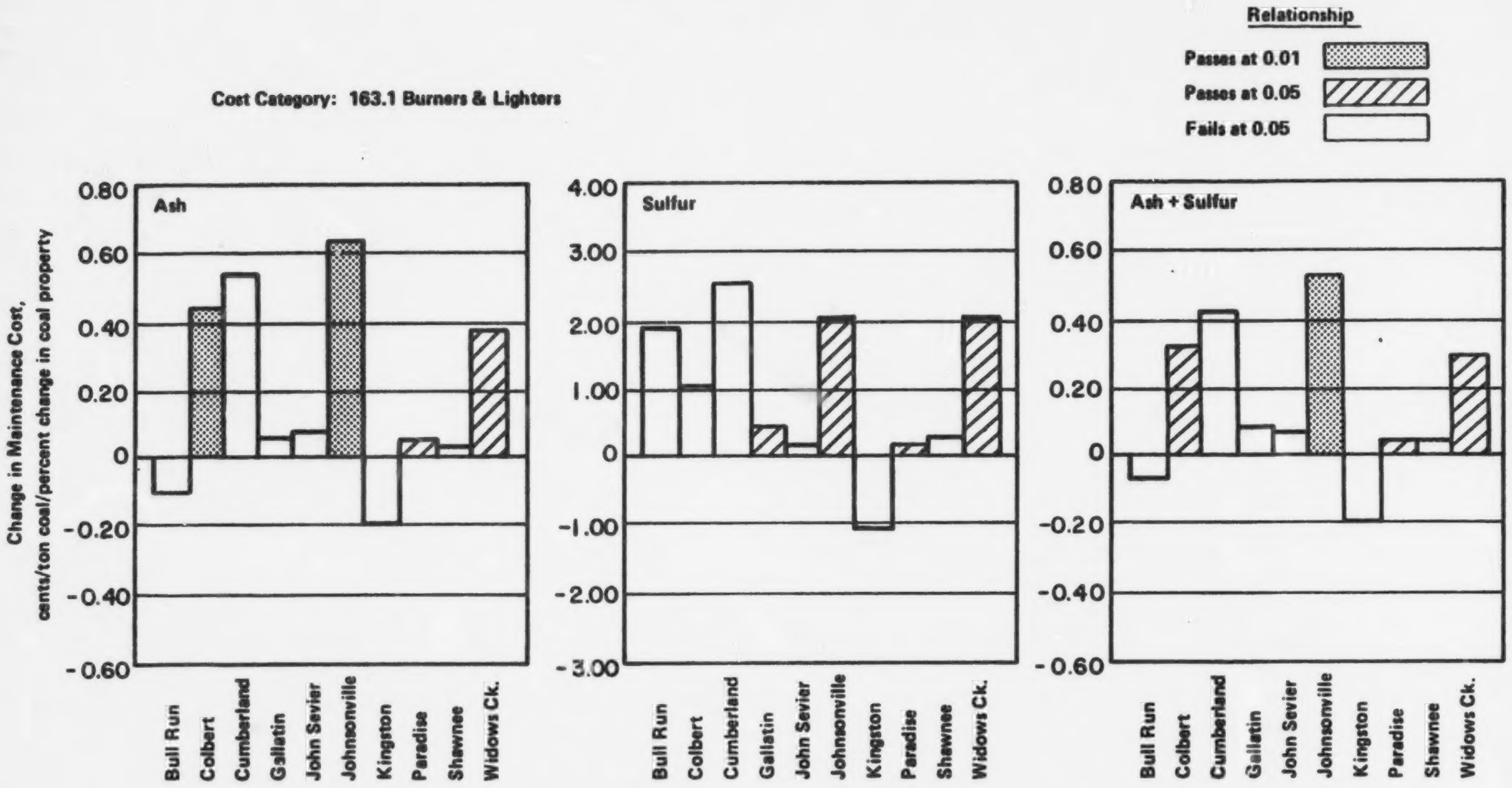

FIGURE 28. MAINTENANCE COSTS FOR BURNERS AND LIGHTERS AS RELATED TO COAL ASH AND SULFUR

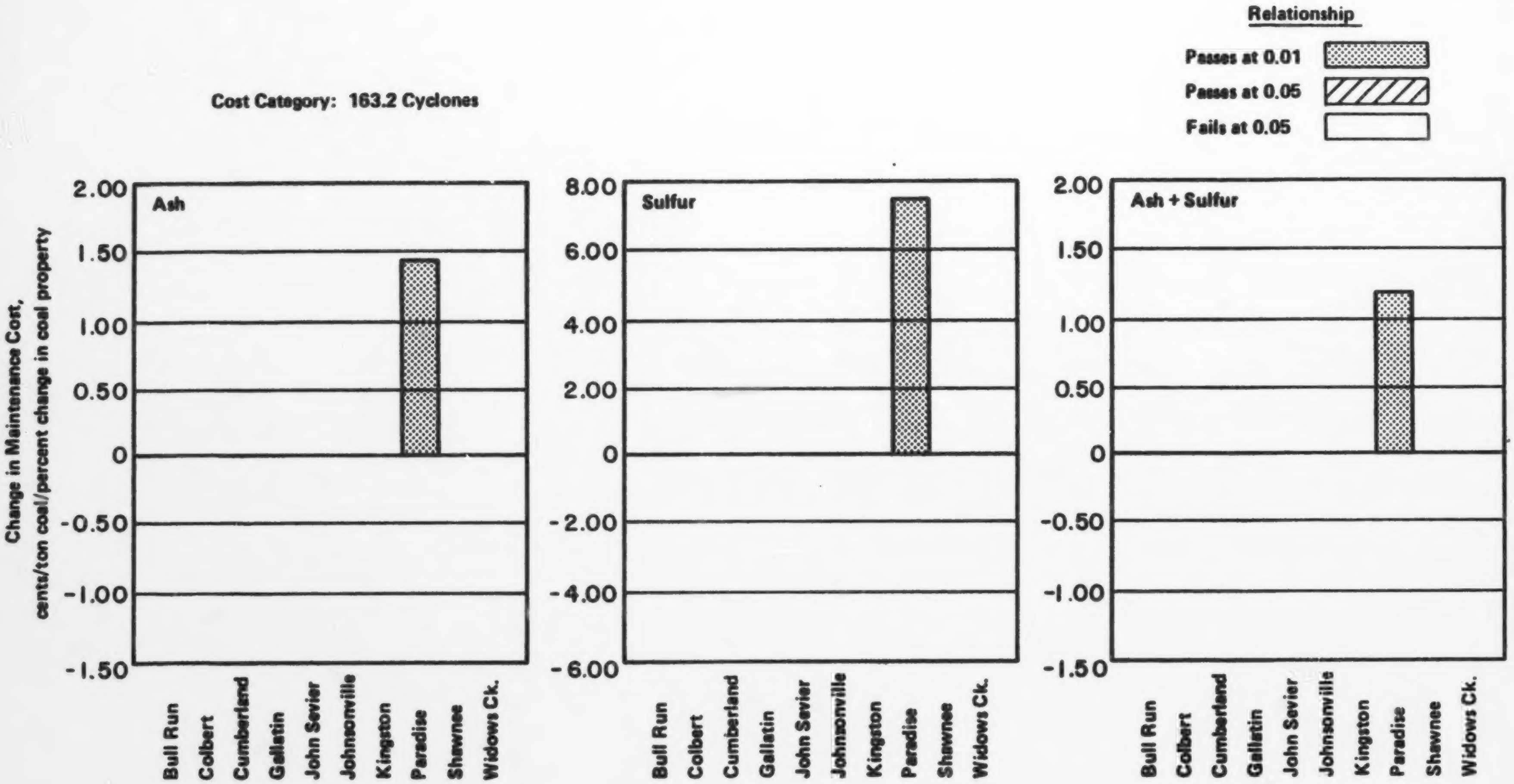

FIGURE 29. MAINTENANCE COSTS FOR CYCLONES AS RELATED TO COAL ASH AND SULFUR

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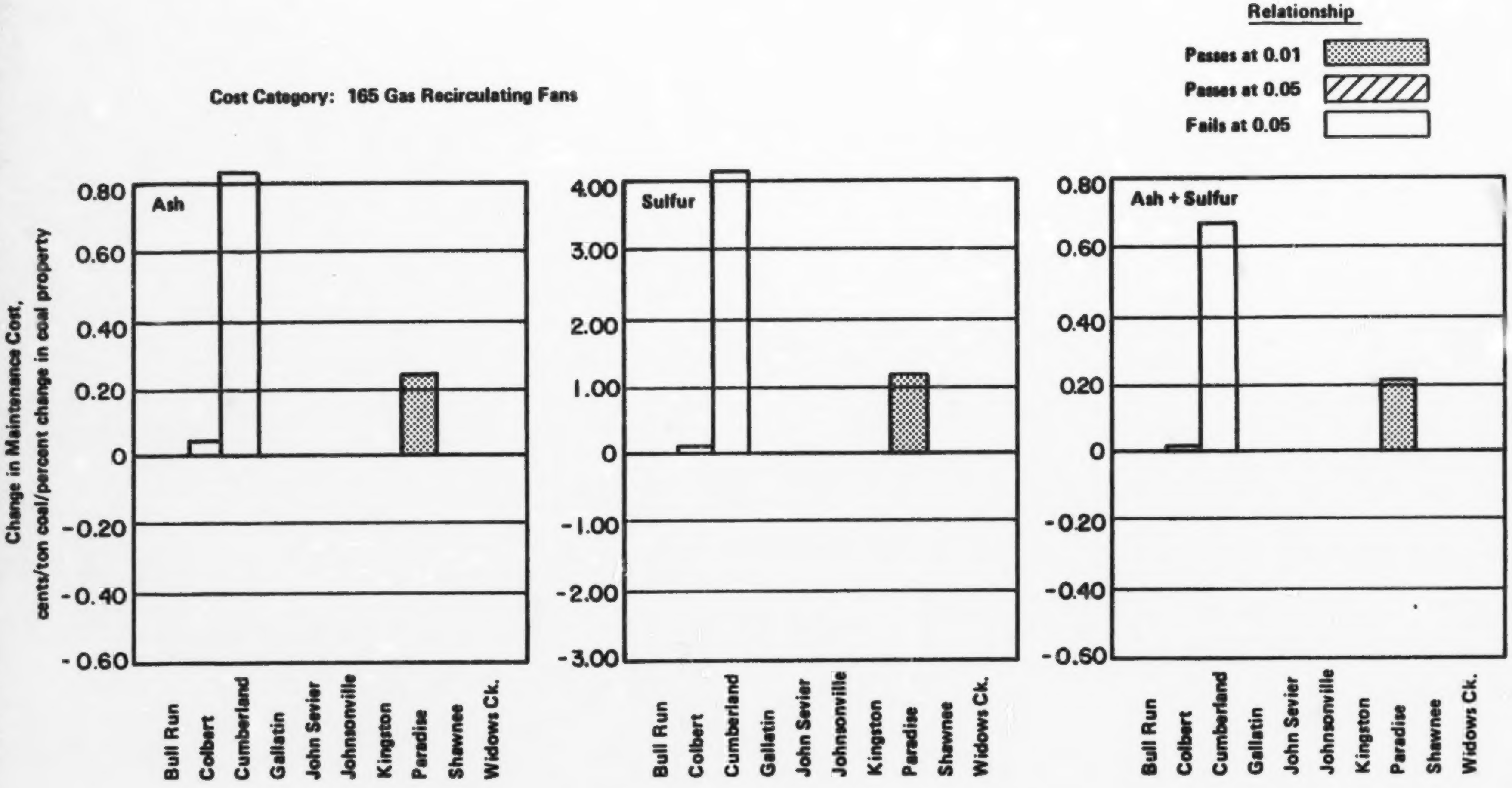

FIGURE 30. MAINTENANCE COSTS FOR GAS RECIRCULATING FANS AS RELATED TO COAL ASH AND SULFUR

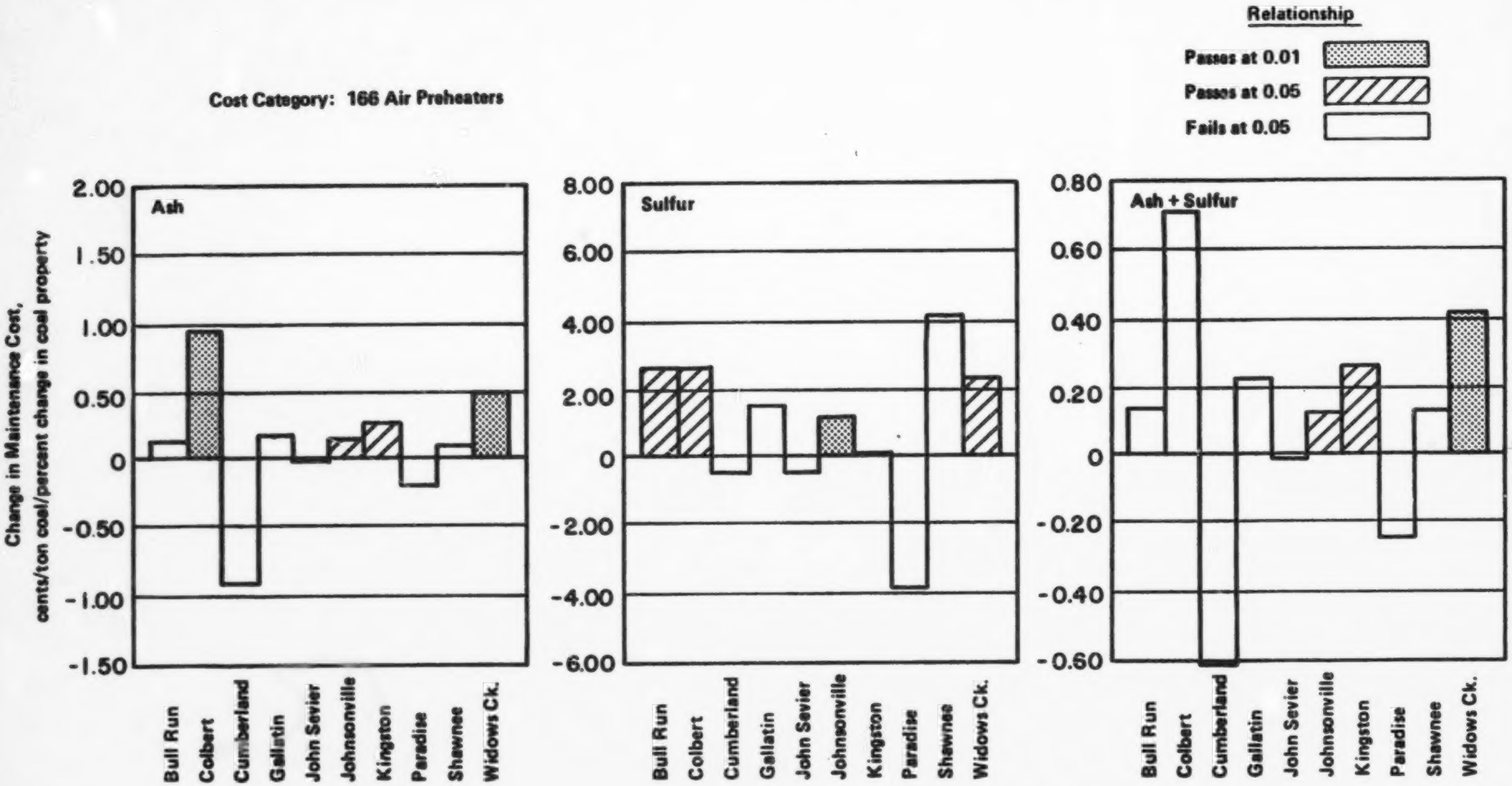

FIGURE 31. MAINTENANCE COSTS FOR AIR PREHEATERS AS RELATED TO COAL ASH AND SULFUR

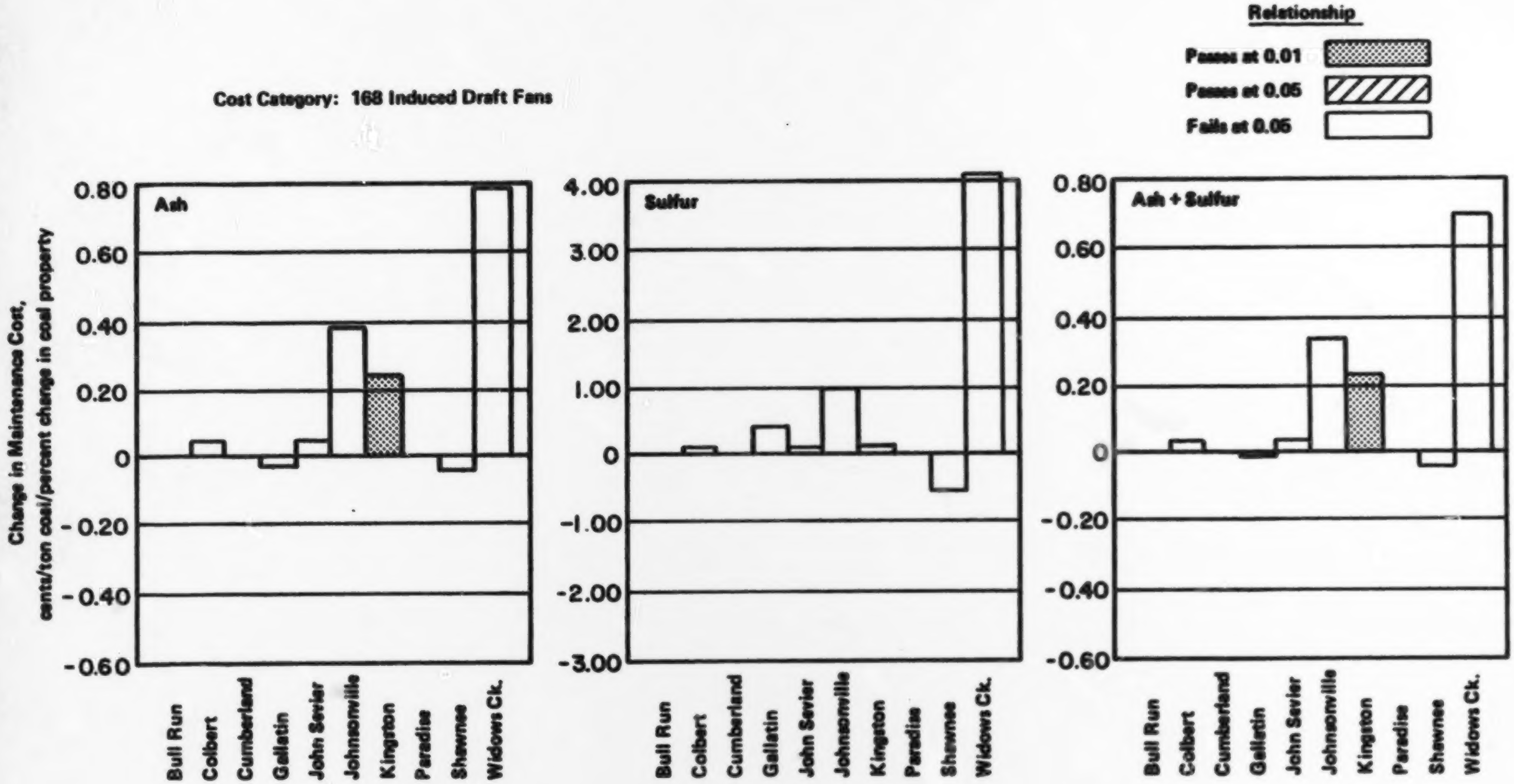

FIGURE 32. MAINTENANCE COSTS FOR INDUCED DRAFT FANS AS RELATED TO COAL ASH AND SULFUR

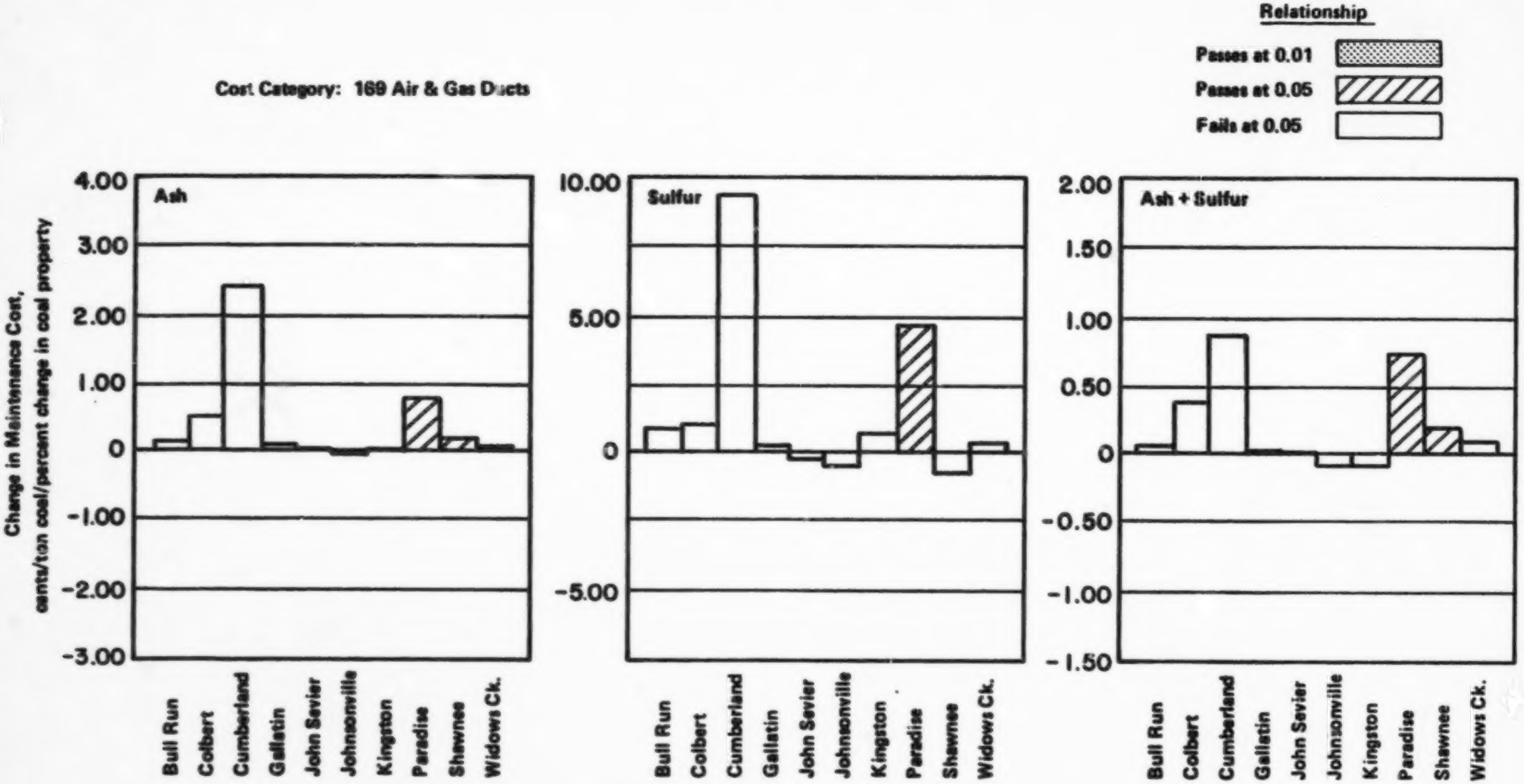

FIGURE 33. MAINTENANCE COSTS FOR AIR AND GAS DUCTS AS RELATED TO COAL ASH AND SULFUR

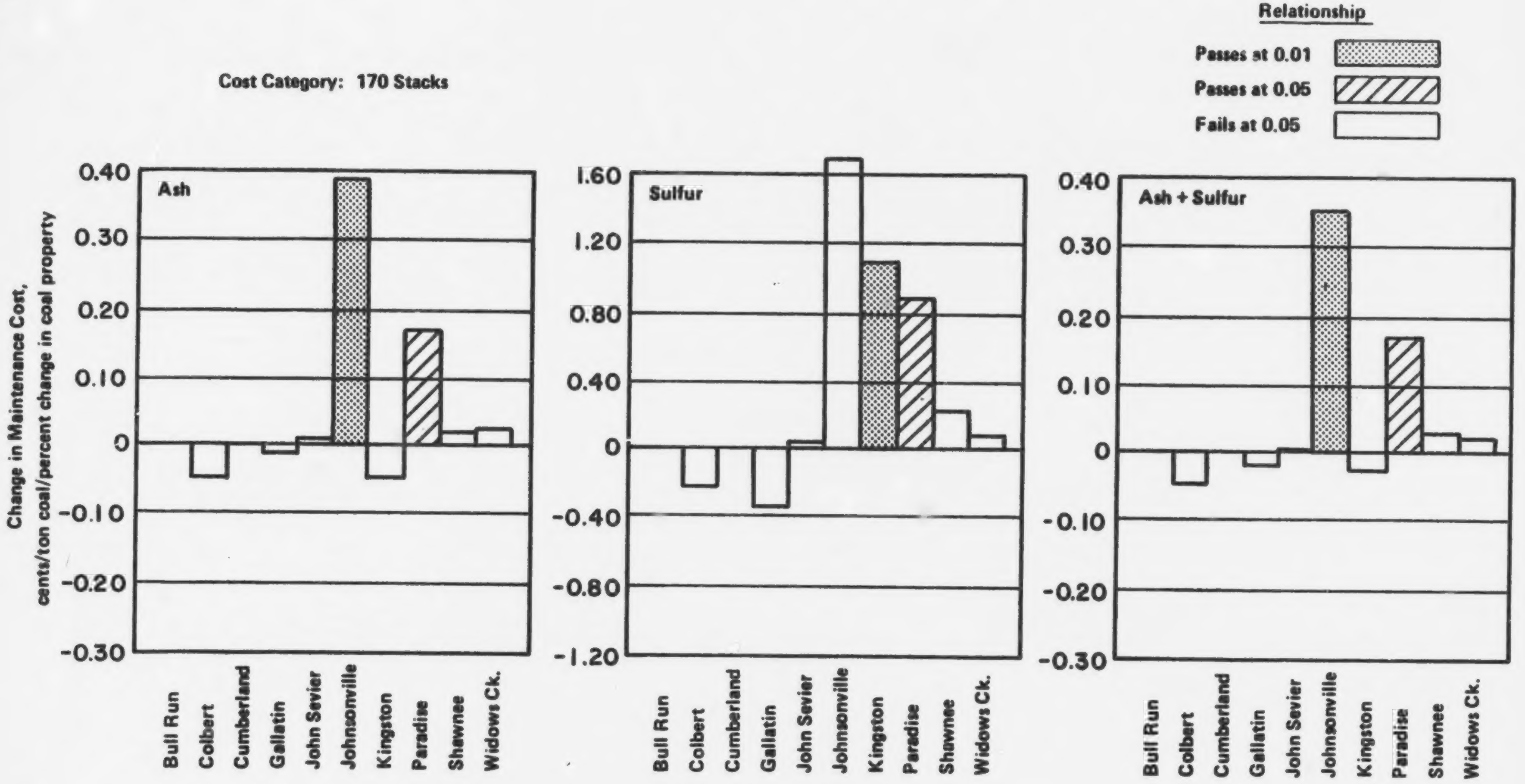

FIGURE 34. MAINTENANCE COSTS FOR STACKS AS RELATED TO COAL ASH AND SULFUR

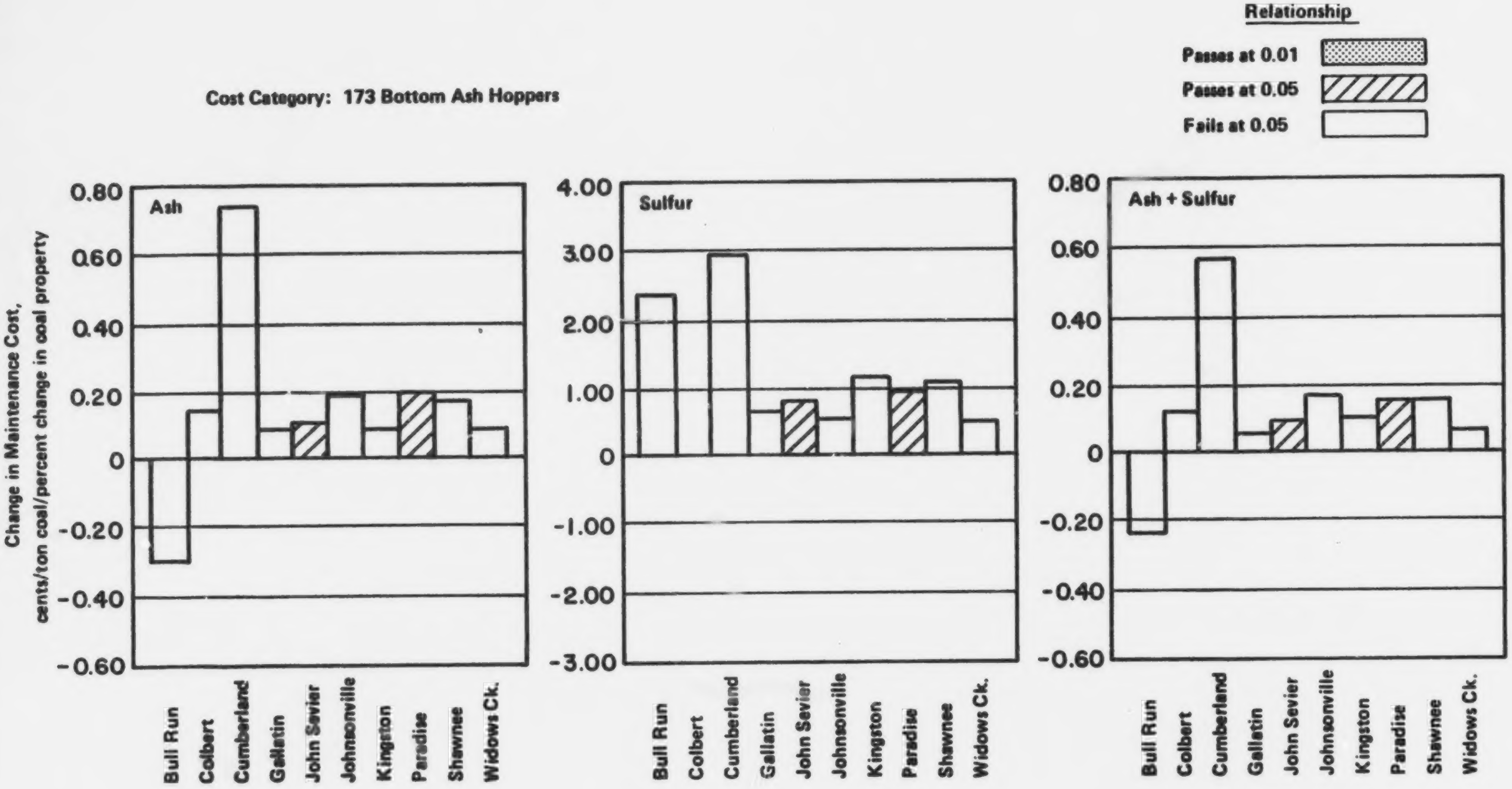

FIGURE 35. MAINTENANCE COSTS FOR BOTTOM ASH HOPPERS AS RELATED TO COAL ASH AND SULFUR

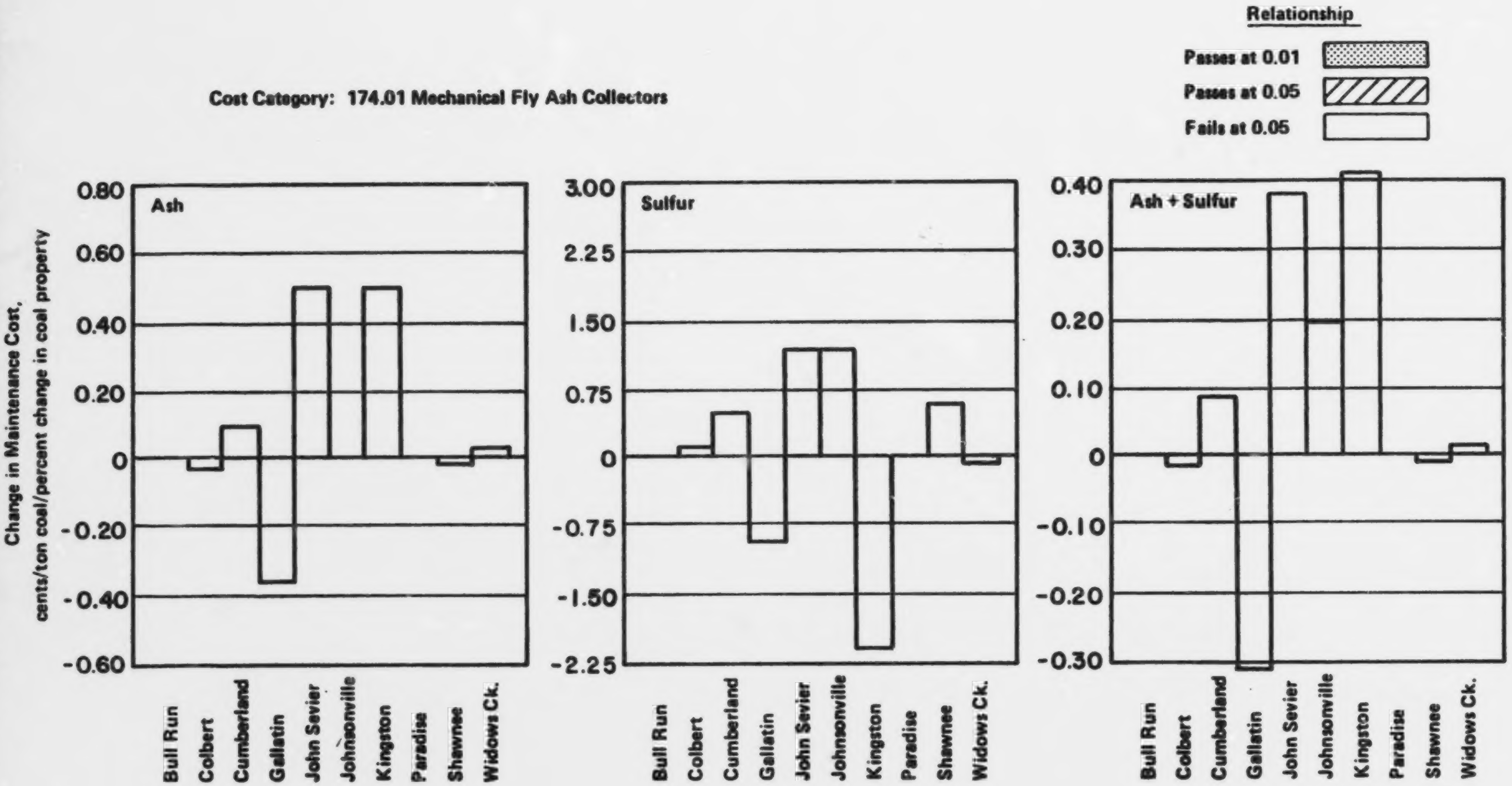

FIGURE 36. MAINTENANCE COSTS FOR MECHANICAL FLY ASH COLLECTORS AS RELATED TO COAL ASH AND SULFUR

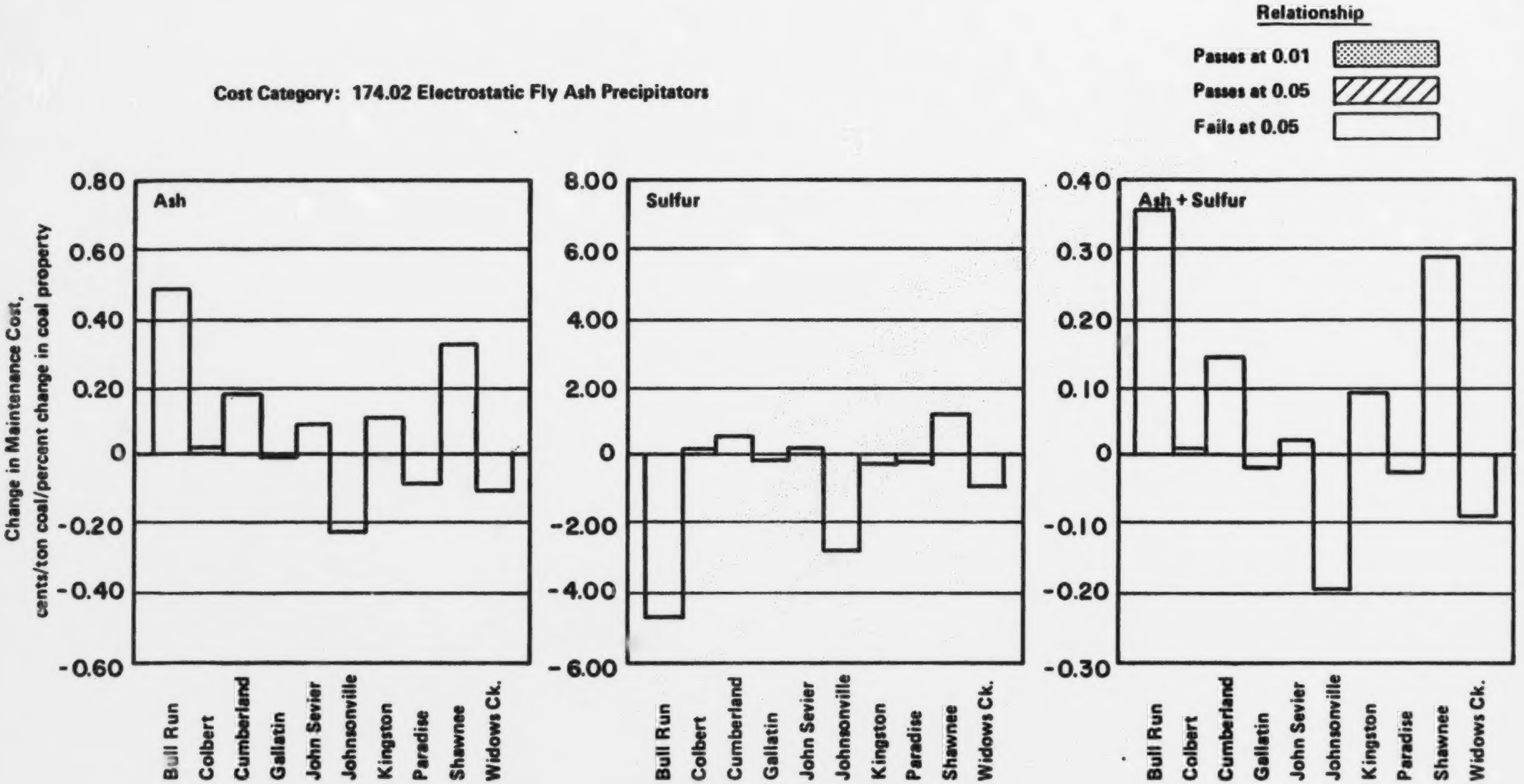

FIGURE 37. MAINTENANCE COSTS FOR ELECTROSTATIC FLY ASH PRECIPITATORS AS RELATED TO COAL ASH AND SULFUR

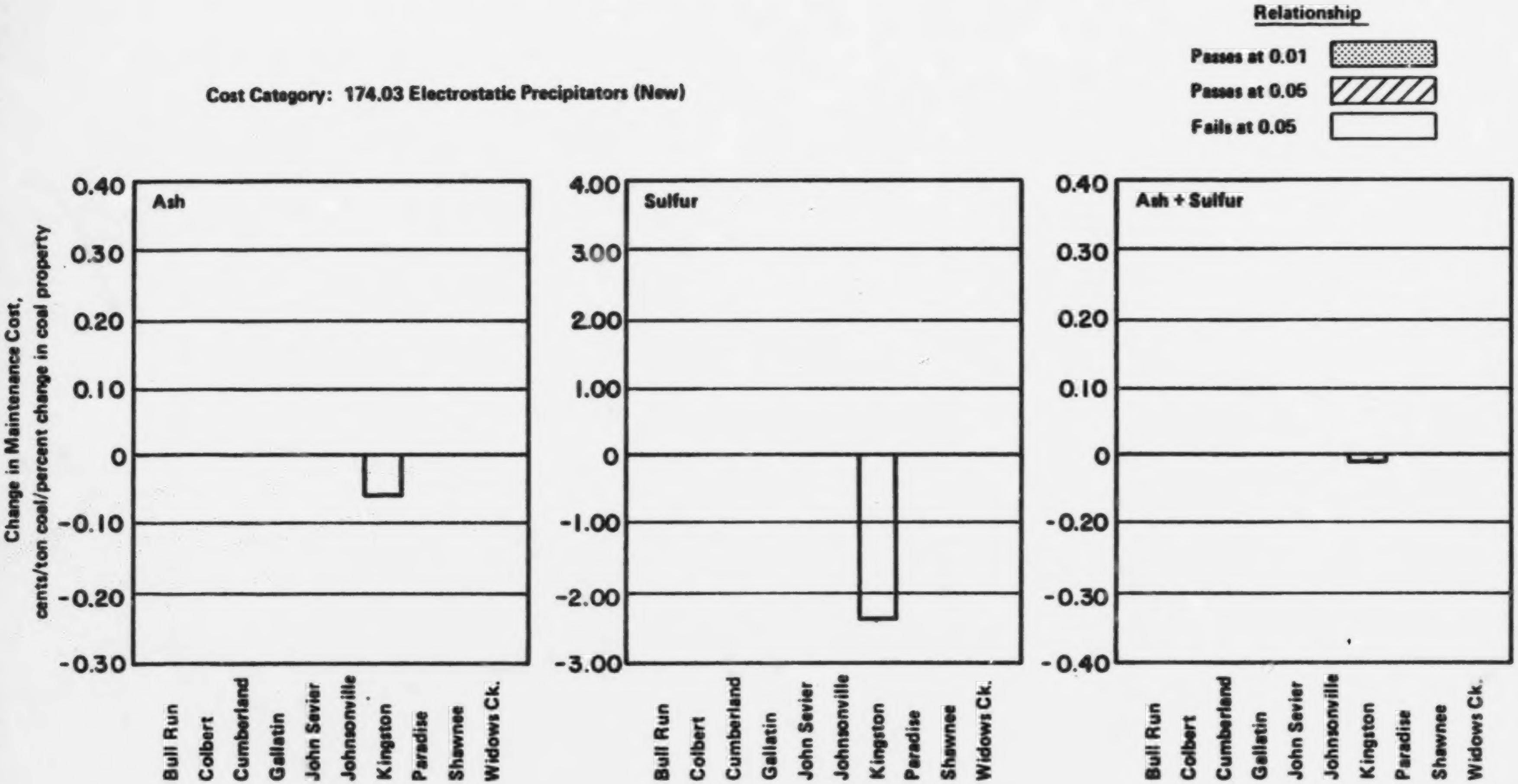

FIGURE 38. MAINTENANCE COSTS FOR ELECTROSTATIC PRECIPITATORS (NEW) AS RELATED TO COAL ASH AND SULFUR

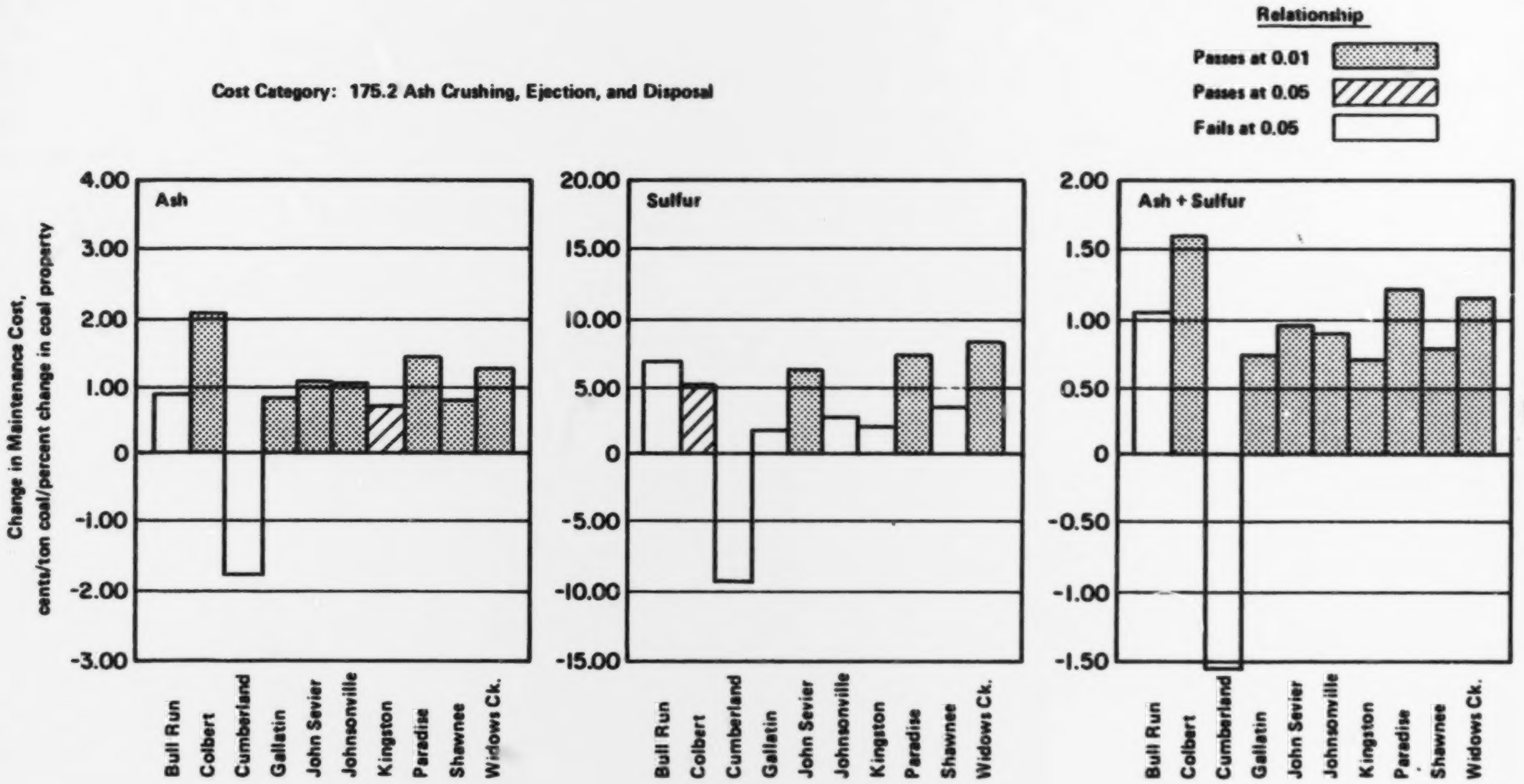

FIGURE 39. MAINTENANCE COSTS FOR ASH CRUSHING, EJECTION, AND DISPOSAL EQUIPMENT AS RELATED TO COAL ASH AND SULFUR

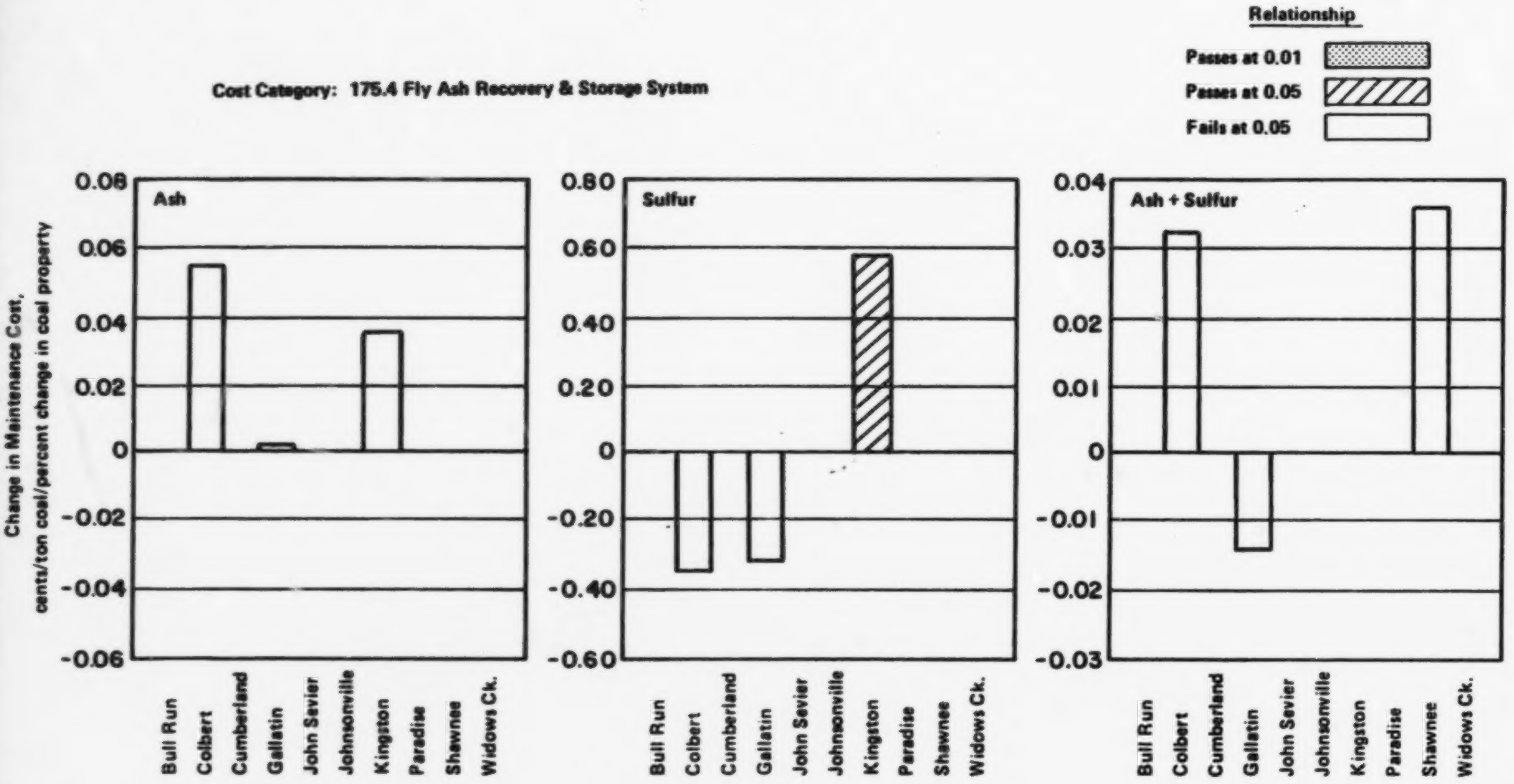

FIGURE 40. MAINTENANCE COSTS FOR FLY ASH RECOVERY AND STORAGE SYSTEMS AS RELATED TO COAL ASH AND SULFUR

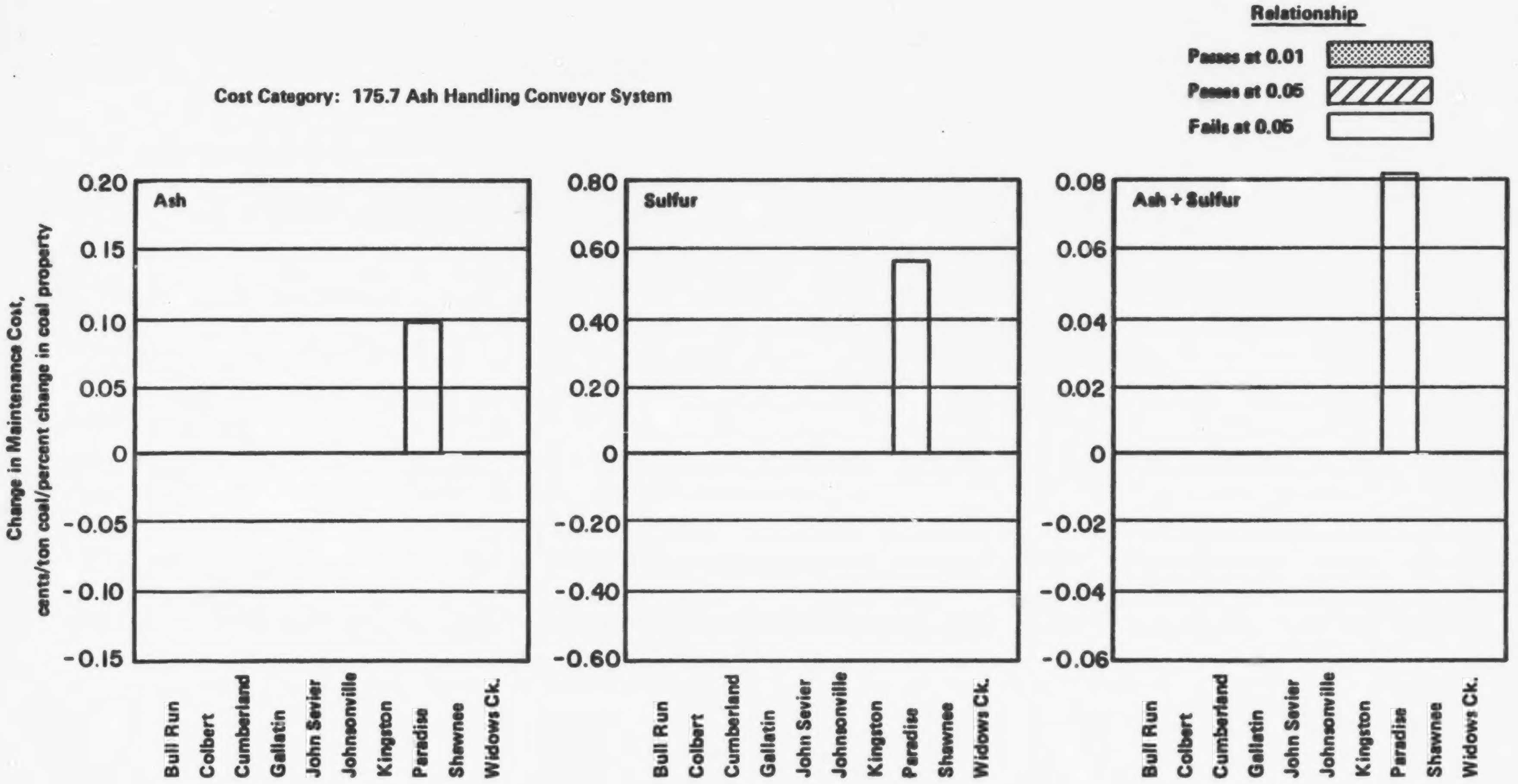

FIGURE 41. MAINTENANCE COSTS FOR ASH HANDLING CONVEYOR SYSTEMS AS RELATED TO COAL ASH AND SULFUR

RECOMMENDATIONS

During the conduct of this program, it has become apparent that all of the data that could be useful are not available. The following recommendations are made in recognition of the fact that TVA is likely to have continued interest in the impact of changing coal characteristics on power plant performance. Thus, although these recommendations will not immediately benefit TVA, developing an improved data base ultimately will assist TVA in evaluating coal/power plant relationships.

Recommendation No. 1

TVA should institute a regular program of detailed coal analysis for all coal-fired TVA power plants.

It is becoming increasingly evident to power plant and fuel engineers that the relatively sparse coal data represented by the proximate analysis are not adequate for evaluating coals. For example, slagging problems are related to some of the following:

- ash content
- ash composition
- ash fusion temperatures
- sulfur content.

Of these, only ash content is reported in the proximate analysis; although sulfur content is often reported when proximate analyses are done, it is not a required part of the proximate analysis.

Therefore, it is recommended that TVA institute a regular program of conducting detailed coal analyses and maintaining this data in its records. Occasionally TVA has conducted detailed coal analyses, usually in conjunction with air pollution studies. Table 2 shows results of one set of detailed analyses. Table lists the coal analyses that should be conducted. The availability of such data for the period 1961-1979 would have greatly aided this study. Beginning to accumulate such data now will help TVA in using any coal/plant performance relationship developed during this program, and will assist future TVA efforts to understand and improve power plant performance.

The recommended frequency of detailed coal analysis is monthly. That is, a monthly sample would be composited from bunker-period samples (on a weighted basis) and only the monthly sample need be analyzed. As a bare minimum, detailed coal analyses should be performed on a quarterly basis.

If all units at a station were firing essentially the same coal, only one detailed coal analysis need be done for the station. However, if different units are firing different coals (e.g., units with scrubbers firing high sulfur coal and units without scrubbers firing low sulfur coal), then a separate sample should be collected and analyzed for each group of units firing like coal.

The estimated cost of a complete coal analysis is about $250. Thus, assuming 16 coal/power plant combinations in the TVA system, the cost of monthly detailed coal analyses would be about $4000, plus the cost of compositing samples. Considering the monthly cost of coal to TVA, this appears to be a small cost to pay for knowing much more about the coal that is being fired in the TVA power plants.

Recommendation No. 2

It is recommended that TVA preserve quarterly coal purchase records on a computer file.

As described by TVA personnel, the present practice includes preparing a separate computer entry (on computer cards) for each coal delivery to each plant. These entries include quantity of coal delivered, source of the coal, proximate analysis, and a few other items. On a quarterly basis, these entries (and there must be thousands of them) are transferred to tape, are summarized by the computer, and a quarterly report of coal deliveries to each plant is made. (Table 3 is a sample of this report.) For this report, all deliveries from each source (or on each contract) are totaled.

Once the quarterly report is available, the computer tape containing the primary information is erased. Computer cards are held for about 2 years, but then disposed of because of storage space limitations.

It is recommended that the one line summaries that appear in the quarterly reports be stored, more or less permanently, on tape. Because these entries each summarize from one to possibly several hundred deliveries, the tape required to these summaries would not require nearly as much capacity as would storage of each individual delivery. Yet, storage of this data would provide a readily accessible summary of coal delivered to (and, in most cases, fired by) each plant for each month and quarter. This data could be useful in future performance analyses and in other TVA coal studies.

Recommendation No. 3

It is recommended that TVA review its cost accounting categories with the view to establishing new cost categories.

As discussed earlier, the TVA Power Accounting Office cost reports for TVA's coal-fired power plants have been reviewed extensively. One disappointing aspect of these reports is that the cost categories do not always reflect categories of equipment or problems that are of interest. For example, all major boiler related costs (including walltubes, superheaters and reheater tubes, economizer tubes, and air preheaters) are lumped in one category, Boilers and Accessories. It would seem that the cost data might be more useful for evaluating plant operation if the Boilers and Accessories item could be subdivided in major boiler components, perhaps as Walltubes, Superheater and Reheater Tubes, Economizers, and Air Preheaters.

It is recommended that TVA consider reviewing the cost categories with the purpose of adding these categories. It is possible that some smaller categories could be combined so as to not increase the overall number of categories, and bookkeeping load.

Recommendation No. 4

It is recommended that TVA add one additional digit to the outage code to more specifically describe causes of outages.

TVA uses the basic IEEE outage code system for coding the causes of outage and derating events. Although these outage codes do describe the general cause of outages and deratings, they lack detail that could make them even more useful in analyzing failure causes within the TVA system and in studies such as this.

An example of what could be accomplished by adding a fifth digit to the outage code is illustrated by the outage Category No. 1002, boiler tube failures. This outage code includes tube failures that arise from both external and internal attacks on the tube, from tube overheating, and from improper installation or repair. By adding a fifth digit, the following specific causes of boiler tube failures could be identified:

1. Fly ash and sootblower erosion
2. Internal corrosion
3. External corrosion
4. Stress cracks
5. Iron attack
6. Slag erosion and falling slag
7. Overheating, short and long term
8. Dissimilar weld cracks
9. Hydrogen embrittlement
10. Other.

Using this system, the fifth digit could be deleted when outage compilations are being made for uses not requiring such detail.

FUTURE WORK (FY '81)

To summarize progress to date, the initial large data collection efforts have been essentially completed and continuing efforts are underway to correlate these data and obtain coal/power plant relationships. Figure 42 illustrates the program efforts, and shows the present status of the program.

Looking at the continuation of the program, each data correlation effort results in one of two outputs:

1. Some coal/power plant performance relationships are identified.
2. It is determined that gaps in the presently available data render it impossible to define significant coal/power plant relationships.

In areas where the latter conclusion is reached, it will be necessary to determine if there are sufficient data available within the TVA system to resolve the uncertainties. If such data are available, additional data collection efforts will be expended to obtain the data. Subsequently, further data correlations will be attempted as to define additional coal/power plant performance relationships.

The effort conducted to date suggests that continued collection and analysis of TVA data will provide useful results. The following section briefly describes the proposed effort to continue these studies during FY '81. (These FY '81 efforts are defined in terms of tasks described in the original program.)

Task 1: Assemble and Organize Coal Data

Much coal data already has been assembled (as described earlier in this report). In fact, it is doubtful that further coal data collection efforts are justified.

The only major TVA coal data source that has not been tapped is the proximate analyses of coal delivery samples. These data are entered into TVA's computer and printed out as quarterly summaries. Subsequently, the computer tapes are erased. If this data were available on computer tape, it definitely would be of interest. However, there is doubt that the cost of

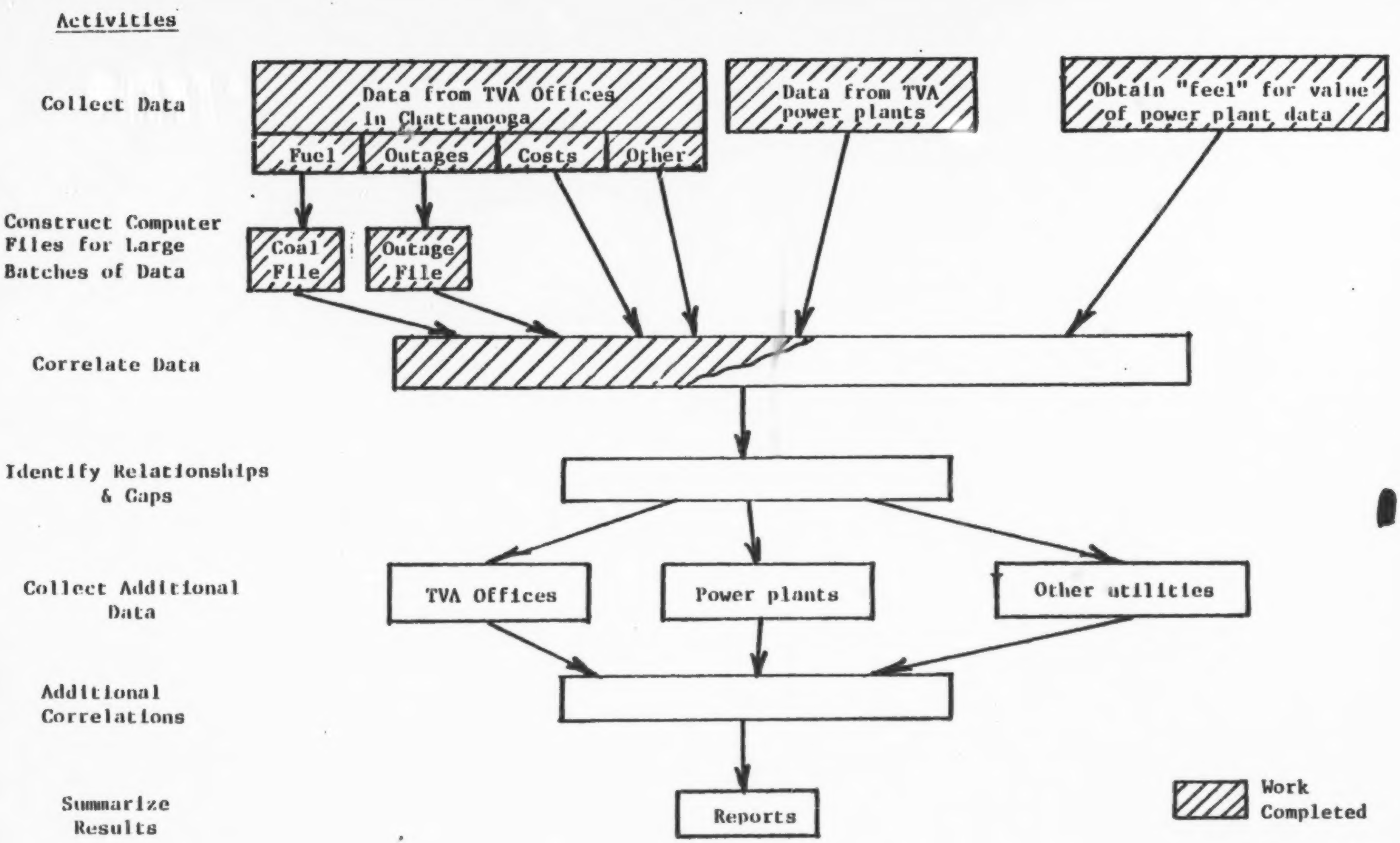
Activities
Collect Data
Data from TVA Offices in Chattanooga
Fuel
Outages
Costs
Other
Data from TVA power plants
Obtain "feel" for value of power plant data
Construct Computer Files for Large Batches of Data
Coal File
Outage File
Correlate Data
Identify Relationships & Gaps
Collect Additional Data
TVA Offices
Power plants
Other utilities
Additional Correlations
Summarize Results
Reports
Work Completed

FIGURE 42. SCHEMATIC OF PROGRAM ACTIVITY

re-entering this large mass of data into the computer is justified. Also, coal deliveries do not always reflect the coal that is being fired. The plant may do some screening and put poor coal on the pile.

All coal data relative to samples of coal being fired at the plants have been entered into the coal computer file and are being utilized. Some of the mine sample data has not been utilized extensively.

During FY 81 it is expected that Task 1 will not receive a major effort; any work on this task will be determined by specific needs of the data correlation effort.

Task 2: Assemble Plant Performance Data

Available general plant performance data on all TVA plants has been assembled from TVA's Chattanooga offices. Additional plant performance data was obtained on 5 TVA plants during visits to the plants by Battelle and Hoffman-Muntner staff. Obviously, much more plant performance data exists, both with TVA's Chattanooga offices and at the plants, than can be effectively utilized within the time and funding of this project. For example, utilizing the detailed task outage reports of pulverizer maintenance reports for each unit would require an exhaustive effort. Therefore, the collection and utilization of plant performance data has been limited to that expected to be useful by the program staff.

As the data correlation efforts proceed, it is likely that we may want to assemble and utilize additional plant performance data--both from TVA's Chattanooga offices and from the plant--to fill gaps that exist in our present Task 2 data. As a minimum, if plant performance data collected from the 5 plant visits proves useful, we will want to visit additional TVA plants to collect similar data.

Thus, Task 2 is expected to receive a substantial effort during the FY 81 program, but this effort will be less than that previously expended. The specific Task 2 efforts to be conducted will be designed to fill data needs arising out of the data correlation efforts.

Task 3: Assemble Plant Design Data

All basic plant design data has been collected and will have been asembled by the conclusion of the current contract period.

The one area in which further work might be required in Task 3 relates to modifications made to the power plants during their service life. For example, pulverizer replacement at Cumberland definitely could affect pulverizer performance as a function of time. Such effects must be understood to screen them out from coal/power plant performance relationships.

Assembly of data on design modifications is difficult. We have assembled what is probably the most complete record--Monthly and Annual Reports of the Power Production Division. However, we do not expect to systematically review each of these about 250 or so reports and compile a detail tabulation of modifications. Rather, we anticipate examining these reports to determine if equipment changes are related to discontinuities in coal/power plant performance relationships.

Thus, during FY 81, it is expected that only such effort will be devoted to Task 3 as is dictated by the needs of the data correlation effort.

Task 4: Examine Relationships Between Coal Data and Plant Performance Data

Task 4 consists of the examination of relationships between coal data and plant performance data and makes the transition between input (data gathering) activities and output (result generation) activities. The two major activities being conducted in Task 4 are:

4a: Correlation coal data and plant performance

4b: Examining observed plant performance in view of generally used correlations.

Subtask 4a consists of exploring for relationships between coal data and plant performance data, using the base data files assembled in Tasks 1 and 2. Because each base data file is large, the exploring is being conducted using only selected data from the base files. Selection of base data to be included in the correlation attempts must be done in such a way as to not miss finding important relationships. However, in many cases, logic would dictate that only selected data from the base data files need be examined. A variety of standard computer correlation techniques are being used to explore for meaningful relationships.

Subtask 4b consists of examining plant performance in light of coal data and existing correlations. For example, the generally used slagging factor defined by Attig and Duzy will be tested against data available to this program. Failure of exisiting relationships to correlate with data available to this study will be carefully evaluated; it may not mean the relationship is invalid, but that other relationships (i.e., slagging outages to slagging) are not simple.

It is planned that most of the activity for the FY '81 program will be devoted to Task 4 efforts. With the present availability of large quantities of data, Task 4 is proceeding at an orderly pace. However, as Task 4 activities show gaps in available data, these gaps will have to be filled with activities in the Task 1, 2, and 3 areas.

Task 5: Determine Needs for Additional Coal Data and Plant Performance Data

Task 5 will continue to consider the adequacy of the TVA coal and plant performance data in view of the efforts conducted on the program. This task will be conducted in parallel with Task 4 so that meaningful gaps in available data are identified.

Task 6: Prepare Reports

Task 6 consists of the preparation of reports relating progress on, and conclusions of, this research program.

The final report, prepared at the conclusion of FY '81 will describe all activities conducted on the program, and will report the findings of the program. Copies of the entire coal and plant performance data bases will not be contained within the final report, but will be made available to TVA separately, either as hard copy or in computer tape format.

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(9) Boiler operating guides for various units, Babcock and Wilcox.

(10) Boiler design specfications for various units, Combustion Engineering.

APPENDIX A

REVIEW OF STATISTICAL ANALYSIS TECHNIQUES AND TERMS

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REVIEW OF STATISTICAL ANALYSIS TECHNIQUES AND TERMS

This appendix is intended to provide a brief description of statistical terms and procedures. It is hoped that it is helpful to those not using statistical methods frequently in evaluating the significance of results presented in this report.

Regression is a general statistical technique through which one can analyze the relationship between a dependent variable (Y) and a set of independent or predictor variables ($X_1, \ldots, X_p$). The most important uses of this technique are to:

1. find the best prediction equation for Y using the independent variables
2. evaluate the accuracy of this equation
3. determine the degree of dependency of Y on each of the independent variables.

In the simplest case there is only one independent variable (X) and one tries to find the "best" prediction equation expressing Y as a linear function of X, except for some random component. The model used is

$$Y = \beta_o + \beta_1 X + E \quad ,$$

where

Y is the value of the dependent or response variable (e.g., heat rate)

X is the corresponding value of the independent variable (e.g., percent ash

β_o and β_1 are unknown parameters representing the intercept and slope, respectively, of this line

E is a random variable (assumed to have a normal distribution with mean zero and some variance σ^2) associated with Y and represents the total effect of all other factors affecting the value of Y except X.

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Thus, the regression model in this case assumes that any deviation in Y from its linear variation with X is due to the random error component E, about which the researcher has no knowledge except concerning the probability law it obeys.

To estimate this relation, measurements are taken on Y at various values of X and a prediction equation is obtained which minimizes the sum of the squared distances between the actual Y values and the predicted Y values. This prediction equation is of the form

$$Y_i = b_o + b_1 X_i$$

and is known as the least-squares regression equation.

To access the value of this equation several statistics can be computed.

R^2 (R-square) is the estimated percent of the variability in Y which can be attributed to variations in X. The remaining variability is attributed to the random error component.

Γ (Pearson's correlation coefficient) is a measure of the amount of linear relation between Y and X. In the simple case of only one independent variable and a linear model $\Gamma = \pm\sqrt{R^2}$. (The sign is the same as the sign of the slope estimate (b_1) in the regression equation.)

F (Value of the F statistic for testing $\beta_1 = 0$ versus $\beta_1 \pm 0$). If the F test decides $\beta_1 = 0$, there does not appear to be a significant linear relation between Y and X. If it indicates that $\beta_1 \pm 0$, then Y appears to vary significantly with X on a linear fashion. The observed significance level of the F test indicates the random chance of observing an estimate of β_1 as far or farther from zero as the observed value of b_1 when β_1 is actually zero. Thus, the observed significance level is an estimate of the probability of being wrong if one declares $\beta_1 \pm 0$ given the observed data.

The techniques of regression can be extended to include more than one independent variable (multi on regression) and to express Y as a more complicated function (other than linear) of these independent variables, if desired.

For example, we have used the model

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + E_1$$

to express Y (heat rate) as a linear function of X_1 (percent ash) and X_2 (percent sulfur). Again, measurements are taken on Y at various combinations of X_1 and X_2 values to obtain a prediction equation of the form

$$Y = \ell_o + \ell_1 X_1 + \ell_2 X_2 \quad .$$

R^2 then represents the estimated percent of Y variability which can be attributed jointly to variation in X_1 and X_2. The rest is attributed to random error.

ℓ_1 (correlation between Y and X_1) is an estimate of the linear relation between Y and X_1 alone.

ℓ_2 (correlation between Y and X_2) is an estimate of the linear relation between Y and X_2 alone.

There are now two F-values.

F_1 is the value of the F statistic testing for a significant relation between Y and X_1 *after adjusting* Y for any relation with X_2.

F_2 is the value of the F statistic testing for a significant relation between Y and X_2 after adjusting Y for any relation with X_1.

APPENDIX B

DESCRIPTION OF SELECTED TVA COST DATA

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DESCRIPTION OF SELECTED TVA COST DATA

This Appendix is devoted to a listing of the selected TVA maintenance cost accounts in numerical order with a brief description of their scope of coverage. The descriptive words concerning the contents of each account were abstracted from TVA accounting directives. Since all accounts do not apply universally, the plant(s) to which a given account applies appears in parentheses following the title:

BR = Bull Run
C = Colbert
CU = Cumberland
G = Gallatin
J = Johnsonville
JS = John Sevier
K = Kingston
P = Paradise
WC = Widows Creek.

MAINTENANCE COST ACCOUNTS AT TVA COAL-FIRED PLANTS SELECTED FOR ANALYSIS

Acct. 152.1, Bradford Breaker-Type Coal Crusher (BR, C, CU, G, JS, P, WC)

Recorded under this account are the costs associated with maintaining the rotary breaker and the related drive belts and motors local controls, hoppers, chutes, etc. Also, charged to this account are the expenses necessary to maintain the structure in which the breaker is housed and its service facilities.

Acct. 152.2, Hammermill-Type Coal Crushers (J, K, S, WC)

Included in this account are the labor and materials incident to the Hammermill-type (flextooth) crushers with associated drive belts and motors, local controls, hoppers, chutes, and spouts. Additionally, costs are included pertaining to the crusher building and its service facilities.

Acct. 152.31, Coal Conditioners - Numbers 1 and 2 (P)

Collected under the account are the costs associated with maintaining two of the four secondary crushers (coal conditioners) at the Paradise Plant. This equipment is unique to that facility by nature of its cyclone furnace design. Unlike pulverizers, these simple crushers reduce the coal so that about ninety-five percent will pass through a four mesh screen.

Acct. 152.32, Coal Conditioners - Numbers 3 and 4 (P)

Under this account is recorded the other two conditioners at the Paradise Plant. The age of this equipment is about the same as those covered by Acct. 152.31, only the manufacturer is different.

Acct. 153, Coal Conveying Facilities (All Plants)

Included in this account are the labor and materials associated with maintaining the equipment used for conveying coal from receiving points through crushing equipment to the powerhouse bunkers or to (and from) the storage yard. Also included are structures for housing and supporting conveyors, transfer structures, and special buildings for conveyor control and switchgear equipment at plants with Bradford breaker-type crushers, unloading, reclaiming, and surge hoppers; and dust collectors located in areas where dust accumulates from coal handling.

Acct. 154, Coal Handling Power and Control System (All Plants)

As the name explicitly states, this account covers the labor and materials associated with maintaining the electrical facilities serving the coal handling system. The costs in this account are recorded on a plant-wide basis. Although the typical electrical components covered by this account do not come into contact with the coal per se, it was included for possible analysis since the stress and eventual failure of such components might possibly show a relationship with coal quality.

Acct. 155, Coal Bunkers (C, CU, G, J, JS, K, P, S, WC)

Recorded under this account are all the labor and materials used in the maintenance of the coal bunkers which are constructed as an integral part of the powerhouse structural frame. Although it is standard to have a single bunker servicing a separate unit, there are apparently enough common items to prevent individual unit cost accounting.

Acct. 157, Boilers and Accessories

Included in this account are the labor and materials expended in maintaining the integral pressure parts of the steam generating units beginning at the connection of the feed water piping to the economizer inlet header, or to the main steaming drum and ending with the connection of steam piping to the superheater or reheater outlet headers. Also included are the structural steel frames and steel casing, refractories, and insulation.

This is a major maintenance cost category which, because of its magnitude and scope of the account coverage, warrants individual unit accountability. The individual units are designated by a series of decimal breakdowns of the 157 account; i.e., 157.1 designates Boiler Number 1; 157.2 is for Boiler Number 2; etc.

Acct. 157.1, Boilers and Accessories, Unit No. 1 (All Plants)

Acct. 157.2, Boilers and Accessories, Unit No. 2 (C, CU, G, J, JS, K, P, S, WC)

Acct. 157.3, Boilers and Accessories, Unit No. 3 (C, G, J, JS, K, P, S, WC)

Acct. 157.4, Boilers and Accessories, Unit No. 4 (C, G, J, JS, K, S, WC)

Acct. 157.5, Boilers and Accessories, Unit No. 5 (C, J, K, S, WC)

Acct. 157.6, Boilers and Accessories, Unit No. 6 (J, K, S, WC)

Acct. 157.7, Boilers and Accessories, Unit No. 7 (J, K, S, WC)

Acct. 157.8, Boilers and Accessories, Unit No. 8 (J, K, S, WC)

Acct. 157.9, Boilers and Accessories, Unit No. 9 (J, K, S)

Acct. 157.10, Boilers and Accessories, Unit No. 10 (J, S)

Acct. 158.1, Soot Blowers - All Types (BR, C, G, J, JS, K, P, S, WC)

This account is used to accumulate the labor and material costs associated with maintaining the soot blowing systems using steam. These systems are installed in the boilers to introduce a high-pressure steam spray for dislodging soot, dust, and slag that collect on boiler furnace walls and the various tube sections. Each sytem consists of two types: extended-travel retractable units and short-travel wall units installed at various locations about the furnace walls.

Acct. 158.2, Soot Blowers - Air Compressors - Reciprocating Types (BR, C, K, P, S, WC)

Although functionally the same as the other soot blowing equipment, some plants have more elaborate systems which are given separate accounting treatment.

Acct. 158.3, Soot Blowers - Air Compressors - Centrifugal Types (CU, P)

Same as above.

Acct. 158.12, Soot Blowers - Lance--Type IK - Long (CU)

Same as above.

Acct. 158.13, Soot Blowers - Lance - Type IK - Short (CU)

Same as above.

Acct. 158.14, Slag Blowers, Wall - Type IR (CU)

Same as above.

Acct. 160, Coal Transport Piping and Valves (All Plants)

This account is used to collect the costs associated with servicing and replacing the piping and valves through which the coal moves from the bunkers to the burners. Although most of the path traveled is unique to a particular unit, these costs are accumulated on a plant-wide basis.

Acct. 161, Boiler Room Coal Scales and Volumetric Feeders (All Plants)

The scope of this account is obvious by its title. Costs are accumulated on a plant-wide basis. Although it would be easy to account for these costs on an individual basis, it is probably not justified by the level of expenditure.

Acct. 162.01, Pulverizer Mills

As in the case of the 157 account series covering boilers and accessories, this is a major maintenance cost category which is accumulated on an individual basis. Included under this account are all labor and materials necessary to maintain this critically important equipment which varies in design and manufacture among the plants in the TVA system. The various types include the Ring-Roll-Bowl Type (C. E. Raymond), Ball-Race Type (Babcock & Wilcox), and the Ball-Type (Foster Wheeler). The costs in these accounts actually represent those necessary to maintain multiple pieces of equipment.

The individual units are designed by a series of decimal breakdowns; i.e., 162.11 designates Unit No. 1; 162.21 designates Unit No. 2, etc.

Acct. 162.11, Pulverizer Mills for Unit No. 1 (BR, C, CU, G, J. JS, K, S, WC)

Acct. 162.21, Pulverizer Mills for Unit No. 2 (C, CU, G, J, JS, K, S, WC)

Acct. 162.31, Pulverizer Mills for Unit No. 3 (C, G, J, JS, K, S, WC)

Acct. 162.41, Pulverizer Mills for Unit No. 4 (C, G, J, JS, K, S, WC)

Acct. 162.51, Pulverizer Mills for Unit No. 5 (C, J, K, S, WC)

Acct. 162.61, Pulverizer Mills for Unit No. 6 (J, K, S, WC)

Acct. 162.71, Pulverizer Mills for Unit No. 7 (J, K, S, WC)

Acct. 162.81, Pulverizer Mills for Unit No. 8 (J, K, S, WC)

Acct. 162.91, Pulverizer Mills for Unit No. 9 (J, K, S)

Acct. 162.101, Pulverizer Mills for Unit No. 10 (J, S)

Acct. 162.2, Primary Air Fans or Mill Exhauster Fans (BR, C, CU, G, J, JS, K, S, WC)

This account covers the costs incident to the maintenance of the fans used to force the pulverized coal-air mixture from the pulverizer mills to the burners into the boilers. For units manufactured by Babcock & Wilcox, the equipment is referred to as Primary Air Fans; those units produced by Combustion Engineering and Foster Wheeler, the nomenclature is Mill Exhauster Fans. Although this function is typically configured around on individual unit, these costs are accumulated on a plant-wide basis.

Acct. 162.1, Burners and Lighters (All Plants)

Included in this account are the labor and materials costs associated with servicing and replacing the pulverized coal burners and the oil torches with attendant igniters for lighting off or partially firing the furnace. These costs are accumulated on a plant-wide basis.

Acct. 163.2, Cyclones (P)

Under this account, which is unique to the Paradise Plant, are collected all the costs associated with maintaining the cyclone furnaces, which are the water-cooled horizontal cylinders where the coal is fired. This is a major account since Units No. 1 and 2 at Paradise have fourteen cyclones each and Unit No. 3 has twenty-three.

Acct. 165, Gas Recirculating Fans (C, CU, P)

Collected under this account are the costs incident to maintaining the fans which force the recirculation of the gas taken from the induced draft ducts back through the furnaces. This feature can be used to regulate the steam temperature at the superheater outlet.

Acct. 166, Air Preheaters (All Plants)

Under this account are collected the cgsts related to maintaining the equipment used to preheat the air for combustion. This is accomplished as cold air is driven by the forced draft fans through the preheater installed in such a position that exhausts gases from the furnace flow through it and transfer heat by a slowly revolving rotor to the incoming cold air. The heated air then passes to the furnace through the pulverizers and burner windboxes. Although separate preheaters are installed on each unit, the costs are accumulated on a plant-wide basis.

Acct. 166.1, Air Preheater, Except Shot Cleaning System (P)

Functionally, this equipment is the same as above. However, a separate account was established in 1972 to record the maintenance expenses associated with the preheater configuration of the three Paradise units.

Acct. 168, Induced Draft Fans (C, G, J, JS, K, S, WC)

This account includes the labor and materials associated with maintaining the fans on the stack side of the furnace which create a sufficient pressure differential to cause the heated gases to pass through the furnace against the draft loss caused by flow over the convection heating surfaces and through equipment downstream of the fans. These costs are accumulated on a plant-wide basis.

Acct. 169, Air and Gas Ducts (All Plants)

Under this account are collected the costs incurred in maintaining duct work (including insulation) through which air and gases pass from the cold air intakes through furnaces to stacks. Obviously, the areas of most interest to this analysis are those ducts which come in direct contact with coal-air mixtures and the product of combustion. Unfortunately, the account is not that precisely subdivided on a routine basis. Costs under this classification are accumulated on a plant-wide basis.

Acct. 170, Smokestacks (C, G, J, JS, K, P, S, WC)

In addition to the portions of the smokestacks coming in direct contact with the products of combustion, this account also includes the labor and materials necessary to maintain the noncoal related portions such as aeronautical lighting, lightning protection, etc. Besides the makeup of the account, the rather irregular cost pattern at many of the plants reduced our ability to draw any particularly meaningful relationships from an analysis of this account. For such reasons, Bull Run and Cumberland data were not considered under this account.

Acct. 173, Bottom Ash Hoppers

Included under this account classification are all the labor and materials costs associated with maintaining the bottom ash hoppers into which ashes and slag fall from the boiler furnaces and from which disposal is made through piping and handling equipment to the ash disposal field.

These costs are accumulated on an individual basis at all plants. However, due to the irregular cost patterns, infrequent high maintenance cost, and sometimes nominal level of expenditure at many plants, there was insufficient data for systematic analysis. As in the case of other accounts which collect cost on a unit basis, the decimal breakdown designates the specific unit; i.e., 173.1, Unit. No. 1; 173.2 Unit No. 2; etc.

Acct. 173.1, Bottom Ash Hoppers, Unit No. 1 (All Plants)

Acct. 173.2, Bottom Ash Hoppers, Unit No. 2 (C, CU, G, J, JS, K, P, S, WC)

Acct. 173.3, Bottom Ash Hoppers, Unit No. 3 (C, G, J, JS, K, P, S, WC)

Acct. 173.4, Bottom Ash Hoppers, Unit No. 4 (C, G, J, JS, K, S, WC)

Acct. 173.5, Bottom Ash Hoppers, Unit No. 5 (C, J, K, S, WC)

Acct. 173.6, Bottom Ash Hoppers, Unit No. 6 (J, K, S, WC)

Acct. 173.7, Bottom Ash Hoppers, Unit No. 7 (J, K, S, WC)

Acct. 173.8, Bottom Ash Hoppers, Unit No. 8 (J, K, S, WC)

Acct. 173.9, Bottom Ash Hoppers, Unit No. 9 (J, K, S)

Acct. 173.10, Bottom Ash Hoppers, Unit No. 10 (J, S)

Acct. 174.01, Mechanical Fly Ash Collectors

As the name states, this account is used to record all labor and materials costs necessary to maintaining the equipment in which the fly ash in boiler flue gas is mechanically separated and collected in hoppers. This equipment is installed in the induced draft system between the air preheater and induced draft fan.

These costs are accumulated on an individual unit basis. However, as was the case with the preceeding series of accounts covering Bottom Ash Hoppers (173.1 through 173.10), irregular cost patterns and, at times, unexplainable levels of expenditure limit our ability to develop a meaningful relationship by individual assessments. Another potentially complicating factor was the installation of electrostatic fly ash precipitators at many plants beginning around 1970 which deemphasized the role of the mechanical collectors.

Acct. 174.11, Mechanical Fly Ash Collectors, Unit No. 1 (C, CU, G, J, JS, K, S, WC)

Acct. 174.21 Mechanical Fly Ash Collectors, Unit No. 2 (C, CU, G, J, JS, K, S, WC)

Acct. 174.31, Mechanical Fly Ash Collectors, Unit No. 3 (C, G, J, JS, K, S, WC)

Acct. 174.41, Mechanical Fly Ash Collectors, Unit No. 4 (C, G, J, JS, K, S, WC)

Acct. 174.51, Mechanical Fly Ash Collectors, Unit No. 5 (J, K, S, WC)

Acct. 174.61, Mechanical Fly Ash Collectors, Unit No. 6 (J, K, S, WC)

Acct. 174.71, Mechanical Fly Ash Collectors, Unit No. 7 (J, K, S)

Acct. 174.81, Mechanical Fly Ash Collectors, Unit No. 8 (J, K, S)

Acct. 174.91, Mechanical Fly Ash Collectors, Unit No. 9 (J, K, S)

Acct. 174.101, Mechanical Fly Ash Collectors, Unit No. 10 (J, S)

Acct. 174.02, Electrostatic Fly Ash Precipitators

This account includes the labor and materials costs related to maintaining the equipment in which the fly ash in the boiler flue gas is electrostatically separated and collected in hoppers. These costs are accumulated on an individual unit basis at those plants having this type of fly ash collection equipment.

As mentioned above, these electrostatic precipitators were installed as replacements or to supplement the mechanical collectors at some of the older plants during the 1970's. Therefore, we have a much shorter maintenance cost experience record to examine for the existence of any sensitivities to changes in coal quality. Additionally, there is somewhat of an irregular pattern of incurred cost. To compensate for this, we have grouped together the maintenance costs for each of the units at some of the plants and compared the totals with the selected measures of coal quality.

Acct. 174.12, Electrostatic Fly Ash Precipitators, Unit No. 1 (BR, C, CU, G, J, JS, K, P, S)

Acct. 174.22, Electrostatic Fly Ash Precipitators, Unit No. 2 (C, CU, G, J, JS, K, P, S)

Acct. 174.32, Electrostatic Fly Ash Precipitators, Unit No. 3 (C, G, J, JS, K, P, S)

Acct. 174.42, Electrostatic Fly Ash Precipitators, Unit No. 4 (C, G, J, JS, K, S)

Acct. 174.52, Electrostatic Fly Ash Precipitators, Unit No. 5 (C, J, K, S)

Acct. 174.62, Electrostatic Fly Ash Precipitators, Unit No. 6 (J, K, S)

Acct. 174.72, Electrostatic Fly Ash Precipitators, Unit No. 7 (J, K, S, WC)

Acct. 174.82, Electrostatic Fly Ash Precipitators, Unit No. 8 (J, K, S, WC)

Acct. 174.92, Electrostatic Fly Ash Precipitators, Unit No. 9 (J, K, S)

Acct. 174.102, Electrostatic Fly Ash Precipitators, Unit No. 10 (J,S)

Acct. 174.03, Electrostatic Fly Ash Precipitator (New)

As the name implies, under this account are recorded all costs incident to maintaining the "New" ESP equipment. These costs are accumulated on an individual unit basis. For the period of our analysis (through 1978), such costs were collected only at Kingston for the last several years.

Acct. 174.13, Electrostatic Fly Ash Precipitator (New), Unit No. 1 (K)

Acct. 174.23, Electrostatic Fly Ash Precipitator (New), Unit No. 2 (K)

Acct. 174.33, Electrostatic Fly Ash Precipitator (New), Unit No. 3 (K)

Acct. 174.43, Electrostatic Fly Ash Precipitator (New), Unit No. 4 (K)

Acct. 174.53, Electrostatic Fly Ash Precipitator (New), Unit No. 5 (K)

Acct. 174.63, Electrostatic Fly Ash Precipitator (New), Unit No. 6 (K)

Acct. 174.73, Electrostatic Fly Ash Precipitator (New), Unit No. 7 (K)

Acct. 174.83, Electrostatic Fly Ash Precipitator (New), Unit No. 8 (K)

Acct. 174.93, Electrostatic Fly Ash Precipitator (New), Unit No. 9 (K)

Acct. 175.2, Ash Crushing, Ejection, and Disposal Piping Systems (All Plants)

Under this account are collected all labor and materials costs expended in maintaining the crushing, ejection, and disposal piping systems which carry ash and slag from the boiler ash hoppers, fly ash collected from flue gas, boiler dust and pulverizer pyrite rejects from other collecting hoppers through piping to the ash disposal field. Also included in this account are the hoppers for the minor collecting systems.

Needless to say, this account covers a broad spectrum of components which come in direct contact with the potentially erosive and corrosive constituents of the material fed to the boiler. One of the major wear items encompassed by this account are the ash sluice lines (pipes) which carry an ash laden slurry to the disposal field. Because these lines are so critical to the environmentally sound transportation of refuse from the plant, they must be kept in service at all times. To aid in this regard, at a number of plants many portions of pipe have been replaced with sections lined with wear resistant materials. This has significantly modified the wear pattern. Since these changes have taken place during an extended period, it is difficult to

Chairman Miller and other Subcommittee members, that diminishing enforcement resources would continue to make it impossible to adequately enforce wage and hour standards when work has being done in homes, or away from factories.

At its first hearing on the proposal, on May 19, 1981, the Subcommittee took testimony from the Deputy Undersecretary of Labor for Employment Standards and the Solicitor of Labor. In addition, the Subcommittee heard from the Legislative Director of the AFL–CIO, the International President of the International Ladies' Garment Workers Union, the President of the Jewelry Workers Union, an affiliate of the Service Employees' International Union, from garment manufacturers or contractors from New York, Missouri South Carolina and North Carolina, and from representatives of the National Consumers League. The union witnesses generally expressed concern about the potential abuse of workers because of the difficulty of adequately enforcing labor standards when work was done at home, and the concern that few, if any workers, would be in a position to effectively complain about wage and hour violations. The business leaders complained that comprehensive enforcement of the Fair Labor Standards Act was essential if they were to be able to effectively compete with unscrupulous employers, and expressed their concern that permitting industrial homework would complicate, not facilitate, the enforcement of labor standards in their industry.

At a subsequent hearing, in Los Angeles, California, on June 29, 1981, the Subcommittee heard from union and business leaders in California who generally echoed the views of those given at the hearing in Washington. In addition, the Subcommittee heard from law enforcement officials in California, who, operating under a state statute prohibiting industrial homework, indicated their enforcement experience—that enforcement was extremely difficult in the homework setting, and that years of enforcement experience had demonstrated widespread, virtually universal abuse of wage and hour standards in industrial homework in that state. Finally, the Subcommittee received the testimony of a newsreporter who had written a Pulitzer-prize nominated series of stories about the abuse of workers in the garment industry in Southern California. After these hearings, the Department issued its final rule, eliminating the prohibition of industrial homework only in the knitted outerwear industry, and retaining the restriction in all other industries in which homework was then prohibited.

Those hearings, and other Subcommittee, and full Committee hearings which examined the reduction of resources committed by the Department to labor standards enforcement, as well as a report of the Comptroller General on the inadequate enforcement of minimum wage and overtime requirements of the Fair Labor Standards Act, resulted in the introduction of a bill by Chairman Miller, (H.R. 6103) to enhance the enforcement sanctions of the Fair Labor Standards Act. That bill was the subject of additional hearings, in New York City (April 26, 1982) and Washington, D.C. (May 12, 1982).

The G.A.O. Report and the Subcommittee's oversight highlight the weakness of the Act's current enforcement sanction—the only effective provision against an employer who is found to have underpaid workers is to require that employer to pay to the workers the wages which should have been paid if the law's requirements had been met in the first place. In view of the low level of enforcement, and the evidence of widespread violations of the Act's wage and hour standards, clearly such a sanction (which in effect says that the worst thing that can happen to a lawbreaking employer is that if he or she gets caught violating the law, he or she will only have to pay what should have been paid if the employer had complied all along) is insufficient to encourage meaningful voluntary compliance. Accordingly, H.R. 6103 was designed to remove the potential profit from wage and hour violations by imposing a sanction of three times the amount of the underpayment.

At its hearings on the measure, the Subcommittee heard from union leaders representing minimum wage workers, and from employers in the lower wage industries, all of whom agreed that the bill would be helpful in eliminating the potential profit in wage gauging, in reducing wage and hour cheating in those industries, and would thus, assist legitimate, law abiding employers to effectively compete in those industries. Wage and Hour Administrator, William Otter testified that while the Administration did not specifically support the bill, it did recognize the need for enhanced Fair Labor Standards enforcement provisions. Former Congressman James O'Hara, the former Chairman of the Minimum Wage Study Commission, testified that the sanctions of the bill were consistent with the recommendations of the Commission. Representatives of the AFL–CIO testified in support of the measure.

The Subcommittee reported the bill with several amendments, including a civil penalty for certain recordkeeping violations, offered by Mr. Erlenborn, the Ranking Minority Member. At full Committee, an additional amendment to exempt first violations from the treble-damage sanction was offered by Mr. Miller; and the bill, as amended was reported to the House.

While there was insufficient time in the 97th Congress to gain enactment of the bill, the matter of effective enforcement sanctions under the Fair Labor Standards Act remains one of very high concern to the Subcommittee.

CHILD LABOR

On July 16, 1982, the Secretary of Labor published in the Federal Register, proposals to amend the regulations dealing with the employment of 14- and 15-year old children. These proposals would have expanded the number of hours in which these children would be permitted to work; would have moved the "curfew" hour on school nights from 7:00 pm to 9:00 pm and would have modified the prohibition on employment of children in certain dangerous occupations, with the effect of permitting children to work in certain occupations which has previously been deemed to be too hazardous for the employment of such young children. In addition, the Secretary proposed to modify the procedures for the certification of the employment of full-time students at the sub-minimum wage, with the effect of reducing the ability of the Department to monitor the sub-minimum wage program.

These proposals were the subject of oversight hearings, on July 28, 1982 and Auugst 3, 1982. The Subcommittee heard testimony from

Mr. William Otter, Wage and Hour Administrator, who explained the Department's intentions with respect to the proposals, and a representative of the International Association of Amusement Parks and Attractions, who endorsed the proposed changes to the regulations. The Subcommittee also received the testimony of Tom Donahue, Secretary-Treasurer of the AFL-CIO, and officials of various educational and parent groups, consumer groups, academics, and the National Child Labor Committee, all of whom opposed the proposed changes in the regulations. As a result of these hearings, the Department agreed to extend the public comment period for an additional 150 days during which time it would solicit the views of all concerned organizations, and at the end of the period, to withdraw the proposals and issue new ones based on the comments received.

The Subcommittee continues to believe that the appropriate regulation of child labor remains an important aspect of the administration of the Fair Labor Standards Act and has a profound impact on employment patterns, generally. The Subcommittee will continue its active oversight of child labor in the 98th Congress.

2. Occupational disease compensation

The disease and disability which is the result of exposure to toxic substances in the workplace is perhaps the most profound public health crisis in the history of our nation. The nation is becoming increasingly aware of and concerned about the health, compensation and litigation crisis which is the result of the "asbestos situation"; and the Subcommittee remains concerned that asbestos may, regrettably, be the first of several waves of "crises" resulting from what was for too long, and in many cases continues to be inadequately regulated use of toxic substances in the workplace. For these reasons, the Subcommittee spent some considerable time during the 97th Congress, dealing with these important issues. There were four days of oversight hearings, and three days of legislative hearings on H.R. 5735, a bill introduced by Chairman Miller to establish a federal program for the compensation of workers disabled by certain occupational diseases, and the survivors of workers who have died as a result of these diseases.

The Subcommittee's oversight activities examined the deficiencies of the current workers' compensation programs in dealing with occupational disease claims, and the effect of those deficiencies on transferring financial burden for the occupational disease victim to tax-supported income and medical programs. In addition, the Subcommittee studied the effect on compensation costs of reduced workplace safety and health standards on the enforcement of those standards, and the effect on the compensation of the asbestos victims of the petition for voluntary bankruptcy of several asbestos companies. Broader understanding of these ramifications of the current compensation and workplace safety and health programs was an essential element of the Subcommittee's development of a legislative proposal to deal with occupational disease compensation. Such legislation should have several, equally important objectives—a fair, efficient, and compassionate system for compensating the victims of occupational disease; reducing, and eventually eliminating the burden which the current, inadequate workers' compensation system places on tax-supported benefit programs such as Social Security and Medicare; internalizing the costs of compensation and medical expenses within the responsible industries to encourage meaningful improvements in the industrial use of toxic substances and an aggressive search for non-toxic substitutes for those substances; and a medical monitoring and intervention program which will reduce the incidence of disability and premature death resulting from workplace exposure to toxic substances, which would further reduce compensation costs.

Toward those objectives, the Subcommittee's oversight activities in the 97th Congress focused on four distinct areas.

On April 9, 1981, the Subcommittee examined the impact on compensation costs of reduced workplace health standards. While focusing specifically on the then current Administration proposals to amend the OSHA Cotton Dust Standard, the Subcommittee examined the direct relationship between relaxed workplace health standards and relaxed enforcement of those standards and the resulting increased incidence of compensable disabilities. These "downstream" compensation costs are too often not adequately considered in policy determinations to weaken workplace safety and health standards and their enforcement.

In San Francisco, on April 23, 1981, the Subcommittee examined the treatment of occupational disease compensation claims by the state workers' compensation programs, paying particular attention to the special provisions of the California program which attempt to expedite asbestos claims. The California experience, according to the witnesses who included program administrators, compensation judges, claimant representatives and an insurance company executive, has not resulted in significant expediting of asbestos workers' compensation claims, in large part due to the interrelationship of workers' compensation and tort claims.

On October 6, 1981, the Subcommittee examined the deficiencies of the current compensation of occupational disease victims through the workers' compensation systems and the effect of these deficiencies in increasing the burden on publically supported medical and income programs. These hearings suggested that if workplace occupational disease victims could obtain adequate compensation and medical expenses through the workers' compensation system, the Social Security system, Veterans Pension programs, Welfare and Food Stamp Programs, and Medicare and Medicaid programs could save in excess of $3 billion each year.

Finally, on September 9, 1982, the Subcommittee examined the effect of the voluntary bankruptcy of the Manville Corporation (Johns-Manville) and UNR Industries (UNARCO, or Union Asbestos and Rubber Company) on the compensation of the asbestos victims. Witnesses included the Assistant Attorney General for the Civil Division, the Senior Vice-President of the Manville Corporation, and the President and Chief Executive Officer of UNR, Inc. The appropriateness of the voluntary bankruptcy of a corporation with substantial assets in excess of present obligations was thoroughly discussed, as was the ability to protect those individuals who may represent future claimants against the bankrupt corporation, since the identities of those future claimants, and the nature and extent of their claims cannot be ascertained in the bankruptcy proceedings.

The Subcommittee's oversight in these areas has led to a number of conclusions:

> For a number of reasons, structural as well as procedural, the workers' compensation laws of the states as presently constituted, have proven to be incapable of dealing with large numbers of occupational disease claims.
>
> This failure has led to a substantial reliance by these victims on lawsuits against asbestos manufacturers, and in some states, their own employers, as a means of obtaining adequate compensation. These lawsuits in turn, present a number of distinct problems which complicate the ability to compensate a large number of victims. Tort litigation is time consuming, expensive, and laden with unnecessary overhead. Testimony before the Subcommittee suggests that only between 10 and 20 cents of every dollar that goes into the tort system, emerges in the form of a payment to the victim, with the balance consumed by litigation costs; most noticeably, defense costs and to a lesser extent, plaintiffs' attorney's fees. Tort recovery is highly uncertain. While there have been some few significant awards or settlements, the average recovery of the tort plaintiffs is very low when compared to their medical expenses and compensation needs.
>
> Finally, to the extent that the workers' compensation programs of the states, and the litigation system are unsuccessful in delivering prompt, adequate, and fair compensation and medical benefits to the occupational disease victims, the costs of those medical expenses and compensation payments are in fact transferred to the federal government, in the form of Social Security payments, veterans benefits, medicare and medicaid payments and sundry welfare support to the asbestos victims. These federal obligations constitute a de facto federal subsidy of hazardous industries, in an amount estimated by the Subcommittee to be in excess of three billion dollars per year.

With these conclusions in mind, the Subcommittee turned to legislative consideration of two measures to establish a federal compensation program for certain occupational disease victims [H.R. 5224 (Fenwick) and H.R. 5735 (Miller, Perkins, Williams, and Fenwick)]. These hearings were held in Washington on March 4, and April 21 and 22, 1982.

Dr. Irving Selikoff, the Director of the Environmental Sciences Laboratory, and perhaps the world's leading expert on the diseases associated with asbestos, discussed the need for such legislation, and the soundness of the medical presumptions included within H.R. 5735. Other witnesses representing organized labor, leading business groups, insurance associations and officers of individual insurance and asbestos companies all testified with respect to specific aspects of the legislative proposals. While business and insurance associations were generally oppoed to federal legislation, several of the individual corporations and insurance companies testified in support of the federal legislative solution. A number of helpful proposals for improvements in the legislative proposals were made by witnesses from both ends of the spectrum, and the Subcommitee continues to evaluate the recommendations of the witnesses at these hearings.

The Subcommittee remains convinced that there is great need for the regularization of the current approach for the compensation of occupational disease victims, and this will remain a matter of highest priority for the Subcommittee in the 98th Congress. The current system remains too wasteful, too inefficient, too slow, and too unpredictable to be relied upon for the compensation of the hundreds of thousands of occupational disease victims who will be presenting claims before the end of this century.

3. Longshoremen's and Harbor Workers' Compensation Act

On July 27, 1982, the Senate passed S. 1182, amending the Longshoremen's and Harbor Workers' Compensation Act. On August 17, 1982, the Subcommittee had hearings on S. 1182, and on H.R. 25, a bill by the Ranking Minority Member (Mr. Erlenborn) to similarly amend the Longshore Act, which is the federal workers' compensation law for workers engaged in maritime employment in the United States.

Since the 1972 Longshore Act amendments, there has been a significant growth in the cost of this program. This is generally thought to be the result of the imprecise jurisdiction of the program, the activities of the special fund established in Section 44 of the law, the unlimited annual adjustment of benefits, and a number of other benefit provisions such as the unrelated death benefit and the uncapped death benefit which are believed to be actuarially unsound.

S. 1182 dealt with these problems by eliminating the unrelated death provision, capping the annual benefit adjustment at 5%, restricting the activities of the special fund, and making significant changes in the jurisdictional limits of the law. In addition, the Senate bill contained numerous changes in the administration of the program, and the rights of beneficiaries, employers and insurance carriers with respect to the claims adjudication and administration process.

Following the Subcommittee hearings, the Subcommittee staff, and the Chairman and Ranking Minority Member engaged in extensive negotiations with organizations and individuals representing an extremely broad spectrum of affected parties, and with staff representatives of the Senate Majority and Minority, toward the development of a compromise amendment to the Senate bill which could accomplish the objectives of reducing compensation costs with a minimum reduction in coverage of the Longshore Act or the benefits currently enjoyed by workers under that program.

An essential element of these negotiations on the part of the Subcommittee was an effort to seek agreement to certain changes regarding the compensation of occupational disease victims and the determination of occupational disease claims under the Longshore Act. The Subcommittee obtained agreement that separate notice and statute of limitations provisions should apply to occupational disease cases, so that compensation claims need not be filed prior to the onset of the disability. In addition, agreement was reached on provisions to establish a reasonable compensation rate for occupational disease victims, based on the National Average Weekly Wage at the time of the onset of the disability, rather than the employees' actual wage at the time of last exposure, which in many instances was years before the onset of the disease.

While considerable progress was made in these negotiations, the Subcommittee was unable to bring the bill to the Full Committee and the House prior to the sine die adjournment of the 97th Congress, and the matter of reforming the Longshore Act remains one of very high priority for the Subcommittee.

4. Federal Employees' Compensation Act

The Administration proposed a series of changes to the workers' compensation law for federal employees, [Federal Employees' Compensation Act (FECA)] in connection with the consideration of both the Fiscal Year 1982 and 1983 Budget Resolutions. These changes, which appeared to be motivated primarily by the desire to achieve program cost savings, would have reduced benefits to disabled workers, restricted eligibility for disability benefits, eliminated the present continuation of pay program (under which certain totally disabled workers may continue to draw wages for a limited period of time while their compensation claims are being processed), and merged the current compensation and federal retirement programs by requiring disabled individuals to convert workers' compensation benefits to retirement payments at age 65.

The Administration's proposals were included in the House-passed version of the FY 1982 Budget Resolution, but were deleted in conference at the insistence of Subcommittee conferees. Thereafter, the Subcommittee had legislative hearings, to examine various proposals to amend FECA, as well as current program implementation and administration. The hearings were held on November 13, 1981, December 3, 1981 and February 3, 1982.

Witnesses at the hearings, who included the Presidents of the American Postal Workers Union, the National Association of Letter Carriers, and the American Federation of Government Employees, noted that while the Administration's proposals attempted to reduce program costs by reducing benefits and coverage of FECA, they did little to improve program administration or reduce workplace accidents and diseases in federal workplaces. The witnesses stressed that the Subcommittee should look toward improvements in program management and administration as the appropriate means of reducing costs. There was particular concern that the elimination of the continuation of pay provisions of the current law would result in extreme hardship for disabled workers because of the delays in the processing of compensation claims by the Office of Workers' Compensation Programs. According to a G.A.O. Report, "Injury Compensation Process Delays Prompt Payment of Benefits to Federal Workers" and the Subcommittee's investigation, there remain inordinate delays in the processing and adjudication of compensation claims, the very situation which caused Congress to create the continuation of pay program in 1974, as a means of insuring continued income protection for totally disabled workers during the pendency of their claims before the agency.

The Subcommittee plans continued oversight of the FECA program and its administration by the Office of Workers' Compensation Programs during the 98th Congress toward the end of encouraging, either through program changes or through legislative direction, increased efficiency in the adjudication of compensation claims and the management of claims in payment status, as an effective means of reducing overall program costs.

At the request of the Chairman of the Subcommittee, the Full Committee on Education and Labor did discharge the Subcommittee and report H.R. 756 (Kildee) which amended FECA to provide certain lump-sum death benefits for federal law enforcement personnel and firefighters who were killed in the line of duty. That bill passed the House, but failed to become law in the 97th Congress.

5. The Farm Labor Contractor Registration Act

During the 97th Congress, the Subcommittee held extensive negotiations to develop a proposal to correct some of the outstanding concerns with the Farm Labor Contractor Registration Act. These negotiations, which included grower and labor groups representatives of the Senate committee and the Department of Labor, resulted in the introduction, by Chairman Miller of H.R. 7102 the "Migrant and Seasonal Agricultural Worker Protection Act" on September 14, 1982. Legislative hearings were held the same day and the full Education and Labor Committee unanimously ordered the bill reported without amendment on September 23, 1982. The report was filed on September 28, 1982.

The bill was passed in the House on September 29, 1982, by voice vote and by the Senate on December 19, 1982 (with one amendment to adjust the effective date). On December 20, 1982, the House agreed to the Senate amendment and forwarded the Act to the President for his signature.

As a result of its investigation and oversight, the Subcommittee found several deficiencies with the current law FLCRA assigns virtually all duties and responsibilities to the farm labor contractor, essentially a middleman who recruits, transports and supervises the migrant and seasonal agricultural workers. Case law shows a history of opposing parties attempting to expand or contract the definition of contractor, either to include as many entities as possible or to avoid contractor obligations through exclusion from coverage under the Act. As a result of this case law, certain agricultural growers, associations and employers have been brought into the definition of contractor and have thus become liable for the responsibilities of the contractor. These responsibilities include the duty to provide certain protections to agricultural workers and the duty to register with the federal government. Having sole site growers and agricultural associations and cooperatives register with the Department of Labor has proven to be of little value to the government and in fact according to the Department, served to siphon off limited enforcement funds.

The Subcommittee also learned that the exploitative conditions in which agricultural workers labor have not significantly improved since the enactment of the FLCRA in 1963 or the amendments in 1974. The Subcommittee received evidence of continued deplorable housing, underpayment of wages, dangerous working conditions, and unsafe transportation. Although the passage of FLCRA had provided some relief in individual cases, the overall hope of the Congress that FLCRA would end the plight of the agricultural worker in this country had failed to materialize.

Finally, the Subcommittee found that the Department of Labor's enforcement of the existing law, which has never been wholly adequate, has declined dramatically in recent years. The number of investigators has fallen from 58 in 1979 to 40 in 1982, and the number of investigations has dropped from 5,708 in 1979 to a projected 3,600 in 1982. As stated in the Committee report on H.R. 7102. "Nothing that the Committee has learned indicates that violations of the Act or the exploitation of workers has fallen to the same extent."

H.R. 7102 was developed to address these problems. Only true Farm Labor Contractors need register with the Federal government. Agricultural associations, and agricultural employers (as defined by the bill) no longer need register. However, the bill, for the first time, ties the responsibility for performing the service or for protecting the workers to entities other than the contractor. The protections and duties are linked to the concept of "employment" as covered under the Fair Labor Standards Act, and to the entity which performs the service. Thus, for example, an association which houses workers has the duty under the Act to do so safely. No longer is such a duty contingent on the associations being found to be a farm labor contractor. This, the Committee believes, will enable the Department of Labor to better direct its enforcement resources and allow private litigants to obtain relief of the hazardous condition from the entity with the ability to correct the situation.

That Act becomes effective 90 days after enactment, and the Subcommittee plans an aggressive oversight in the 98th Congress to ensure that initial implementation is consistent with Congressional intent, and is effective.

6. *Immigration and Nationality Act*

On September 16, 1982, Chairman Perkins of the Education and Labor Committee, and Chairman Miller of the Subcommittee on Labor Standards, requested that the Speaker grant the Education and Labor Committee sequential referral of the Immigration Reform and Control Act of 1982 (then H.R. 5772, H.R. 6514, and S. 2222), consisted with the Committee's jurisdiction pursuant to Rule X, Clause 1(g). On Septemebr 28, 1982 the bill was referred to the Committee on Education and Labor "for consideration of such provisions of the bill and amendment as fall within the jurisdiction" of the Committee for a period to end not later than November 30, 1982, (subsequently extended for one day). The Committee reported the bill on December 1, 1982, with 8 amendments. Among these was an amendment proposed by Chairman Miller in the nature of a substitute for Section 211 regarding "H–2 workers."

The H–2 worker program exists under current law (the Immigration and Nationality Act, 8 U.S.C. Section 1101 et seq.) to permit, under limited circumstances, nonimmigrant aliens to work in the U.S. for a temporary period if there are insufficient unemployed domestic workers capable of performing the service. The program, administered by the Department of Labor with final authority resting in the Attorney General, has been a relatively small program with an average of approximately 30,000 to 40,000 aliens being certified to work in this country in recent years. These workers perform agricultural work as well as clerical, sales, and other services.

Under current law, the program procedures are embodied in regulations issued by the Department of Labor, which were developed to ensure that domestic workers are not adversely affected by the importation of temporary non-immigrant workers. The regulations are extensive with regard to agricultural workers, and detail the procedure that the employer must follow to apply for temporary workers, the method by which the Department of Labor determines if there are sufficient available domestic workers to fill the jobs, and the minimum labor standards that must be maintained at the work site.

The Judiciary bill had amended many of the certification procedures in order to make it easier for agricultural employers to obtain non-immigrant alien workers. In addition the Judiciary bill failed to include the minimum labor standards found in the present regulatory scheme.

Chairman Miller's substitute Section 211 was designed in large part to conform the Immigration Reform and Control Act as reported by the Judiciary Committee to the current regulations both with respect to certification of non-immigrant alien, and labor standards. The Education and Labor substitute also provided that the certification by the Department of Labor must be issued prior to the entrance of workers under this program, an important safeguard to insure adequate recruitment of domestic workers. It also followed a Select Committee on Immigration and Refugee Policy recommendation that the economic incentive to hire the alien worker be removed.

Chairman Miller's substitute additionally provided that the "H–2" program could not increase beyond the ability of the Department of Labor to enforce its provision. Information provided to the Subcommittee Chairman by the Department established that the level of enforcement was very low. As the Committee report states:

> In 1981, for example, of the 887 employers who were certified to obtain H–2 agricultural workers, only 11 (or 1.2%) had field visits by either federal or state inspectors. However, of the employers who were investigated in 1980 and 1981, 54 and 47 percent respectively were found to have violated either the statute or the existing regulations.

Finally, the Committee substitute provided for a private right of action in district court for any person aggrieved by violations of this program. This right was provided because of the unknown effects of the legalization program contained in other provisions of the bill and the unknown size of the "H–2" program after enactment of the immigration reforms. Domestic workers, it was felt, must have a mechanism for a fair determination of their rights if they are displaced by an influx of foreign labor.

Both the Committee amendments and the Immigration Reform bill were considered by the House, but no final action was taken on the measure before adjournment of the 97th Congress.

7. *Effects of Technological Change on Work and the Working Environment*

Recognizing that recent advances in computer technology are causing a virtual second industrial revolution, the Subcommittee initiated a comprehensive study of the effects of new technology on work and the work environment. In undertaking this study the Chairman acknowledged that American industry must continue to modernize to successfully compete in world markets. At the same time, however, he expressed concern that in this second industrial revolution, unlike the first, the rights and interests of workers must be protected.

On June 23, 1982, the Subcommittee held a foresight hearing, "New Technology and the American Workplace," to explore the emerging public policy issues accompanying the rapid technological change sweeping our nation's offices and factories.

The General Accounting Office was invited to offer the first Congressional presentation of its recently released study, "Advances in Automation Prompt Concern Over Increased U.S. Unemployment." G.A.O. found a disjointed Federal policy affecting automation, and recommended immediate creation of an overall plan to guide Federal policies and programs. The need for government planning was seconded by Dennis Chamot, Assistant Director, Department for Professional Employees, AFL–CIO, based on his extensive study of efforts by European governments, businesses, and trade unions to manage the social effects of technological change. Business and labor witnesses familiar with office automation agreed that potentially millions of jobs will be eliminated by new technology. There was considerably less agreement on the potential of the new technology to create new and more interesting jobs to replace those which are lost. There was a general consensus that the rapid introduction of office automation without adequate planning, training, and reorganization of work procedures could cause new work related stress. In addition Working Women was concerned that some managers would use the extensive monitoring capabilities of office technology to reinstitute a system of piece work. All witnesses identified a need to re-examine education policies in light of the new demands put forth by information technology, and that a program of worker retraining should accompany the introduction of new technology. Dennis Wisnosky, Vice-President, GCA Industrial Systems Group, proposed using Federal tax policy both to speed the introduction of new manufacturing technology and to encourage the retraining of any employees displaced.

William Bittle, International Association of Machinists AFL–CIO, proposed the expansion of workers' control over the design and introduction of new technology, as well as, the prohibition of technologically induced layoffs, and a guarantee that workers will earn at least their previous wage in any new replacement jobs. He particularly stressed that workers should share in increased profits resulting from productivity created by new technology.

The third manufacturing witness was George Munson, Vice President, Unimation Inc., one of the Nation's leading robot manufacturers.

In preparation for this hearing, the Subcommittee sponsored two Congressional Research Service background studies: "Industrial Work and Automated Manufacturing Technology/Robotics: A Growing Symbiosis" and "Office Work and Information Technology: A Growing Symbiosis."

The Subcommittee has also cosponsored with other House and Senate committees a study by the Office of Technology Assessment of the employment and workplace affects of manufacturing technology. These reports should be completed over the next twelve to eighteen months.

Report of the Activities of the Subcommittee on Select Education During the 97th Congress

AUSTIN J. MURPHY, *Chairman*

GEORGE MILLER	ARLEN ERDAHL
MARIO BIAGGI	JAMES M. JEFFORDS
PAUL SIMON	WENDELL BAILEY, Ex Officio
CARL D. PERKINS, Ex Officio	

ROSEANNE TULLEY, *Acting Staff Director*

The jurisdiction of the Subcommittee as prescribed by the Rules of the Committee on Education and Labor, encompasses generally, but is not limited to "select education programs". The specific statutes under the Subcommittee's jurisdiction are the Alcohol and Drug Abuse Education Act, the Child Abuse Prevention and Treatment Act, the Domestic Volunteer Service Act (except for title II—National Older American Volunteer Programs), the National Institute of Education authorization, the Rehabilitation Act, the Randolph-Sheppard Vending Act, the Kendall School for the Deaf Act, the Education of the Handicapped Act, and the Environmental Education Act.

The Subcommittee also has general jurisdiction over areas such as discrimination on the basis of handicapped conditions, including architectural and transportation barriers, domestic violence, the Robert A. Taft Institute, foster care, adoption, pornography, and education technology.

ALCOHOL AND DRUG EDUCATION ACT

On March 23 and April 3, 1981 the Subcomittee held hearings on H.R. 2644, a bill to reauthorize the Alcohol and Drug Abuse Education Act. This Act provides funding for training and technical assistance to local school districts across the country to encourage the prevention of alcohol and drug abuse. H.R. 2644, as amended, included the prevention of deviant and destructive behavior which is related to alcohol and drug abuse in the purpose of the Act, specified that Indian tribes, Indian organizations and urban Indian centers would be eligible to participate in the program, and specified that not more than 5 percent of funds appropriated under the Act could be used for evaluation of programs. The bill authorized 3 million for fiscal year 1982, 3.24 million for fiscal year 1983, 3.449 million for fiscal year 1984 and 3.779 for fiscal year 1985, for activities supported under the Act.

Witnesses expressed unanimous support for extension of this program in its categorical form. They stated that although this was a small program, it has impacted school districts in every state of the union, reducing the incidence of drug and alcohol abuse in schools and in the process energized whole communities to action. In its present form, witnesses indicated that this program has succeeded because it has developed models of cost-effectiveness.

The Subcommittee reported H.R. 2644 to the Full Committee on April 3, 1981. On April 28, 1981 the Committee on Education and Labor reported H.R. 2644 with an amendment to the full House.

The House Reconciliation bill incorporated H.R. 2644 but the Senate Reconciliation bill contained the Administration's proposed consolidation bill which placed the Alcohol and Drug Abuse Education Act in a block grant to states. During consideration of this issue in Conference, a compromise was made which placed this program in the Secretary of Education's Discretionary Fund in a protected status for fiscal year 1982.

ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD

Since it passed the Architectural Barriers Act in 1968, Congress has repeatedly urged each federal agency to provide accessibility for the handicapped in government owned and leased buildings. As part of that effort, in the 1978 amendments to the Rehabilitation Act, the Architectural and Transportation Barriers Compliance Board, which enforces compliance with the Barriers Act, was given responsibility to develop minimum guidelines and standards of accessibility.

The Board and its standards became an issue during the 97th Congress when the Administration first tried to abolish the Board and, failing to get Congress to agree to that, had its new Administration appointees to the Board vote to rescind the minimum standards.

In response to these activities, on November 6, 1981, the Subcommittee on Select Education held a hearing to determine the justification for the Board's proposed rescission of standards. Testimony from the outgoing Board Chairman and from public witnesses highlighted the need to maintain minimum standards and gave examples of the frustrations of disabled persons who encounter barriers in public buildings.

Shortly after the hearing, the Board met and agreed to a compromise which retained the major part of the Board's minimum guidelines and standards. Issues remaining to be resolved include the application of the Architectural Barriers Act to the leased buildings of the Postal Service.

Publication of a uniform federal standard, which may be a model for state and local building codes, and which has as its basis the Board's minimum guidelines and standards, is anticipated in the near future.

CHILD ABUSE PREVENTION AND TREATMENT AND ADOPTION REFORM ACT

The Subcommittee on Select Education held hearings on H.R. 2318, a bill to extend authorizations for programs under the Child Abuse Prevention and Treatment and Adoption Reform Act on March 9th and 12th, 1981, in Washington, D.C. Funding for fiscal year 1982 was set at $30,428,000. Authorizations for the subsequent four fiscal years included an 8 percent yearly increase over the level authorized in the year immediately preceding. No floor action was taken on H.R. 2318 because of the reconciliation process. However, funding for programs under the Act was extended through the Omnibus Budget Reconciliation Act of 1981, at Sections 609 and 610. Child abuse State Grants and other discretionary activities were provided with $7,000,000 and $12,000,000, respectively for fiscal year 1982 and fiscal year 1983.

OVERSIGHT

The United States General Accounting Office released a report to the Chairman of the Subcommittee, entitled "Sexual Exploitation of

Children—A Problem of Unknown Magnitude", on April 20, 1982. This report was requested to assist the members of the subcommittee in evaluating current protections for children against such exploitation. There were indications therein that prostitution among teenagers had increased over the past five years, while commercial child pornography had not increased. Notwithstanding the latter indication, it was noted that much of the child pornography has gone "underground".

Two oversight hearings were held after the release of the report in Pittsburgh, Pa. and Washington, D.C., on April 23 and June 24th, respectively.

In April, of 1982, a child born in Bloomington, Ind., was allowed to die after it was disclosed that he had been born with Down's Syndrome and an incomplete esophagus. His death sparked intense concern about the protection of children born with handicapping conditions. This subcommittee held a hearing on the problem on September 16, 1982. The issues of primary importance to this committee were whether such conduct constituted child abuse or neglect, and whether it constituted a violation of section 504 of the Rehabilitation Act. Testimony revealed that the treatment *vel non* of handicapped newborns is much more complicated than merely deciding to rescue a child or not. There are serious medical, moral, ethical, and legal implications to be considered before making the appropriate treatment decision.

DOMESTIC VOLUNTEER SERVICE ACT

Reauthorization

During the first session of the 97th Congress, Chairman Murphy introduced H.R. 3292, which extended the authorization of appropriations for title I and title IV of the Domestic Volunteer Service Act of 1973. The Act funds programs of the ACTION agency.

The Subcommittee held two days of hearings, on April 30 and May 1, 1981, with Administration and public witnesses. The Subcommittee reported the bill, with amendments, by a recorded vote of 8 to 0 on May 6, 1981. The full Committee ordered the bill reported, with amendments, on May 12, by a recorded vote of 27 to 3.

H.R. 3292 would have extended authorizations for appropriations for ACTION programs through fiscal year 1984 and would have provided that 83 percent of the funds appropriated under title I of the Act first be available to the VISTA program. This was a contradictory position to the Administration's proposal to phase out the VISTA program during fiscal year 1983, and was based upon strong evidence in testimony concerning the continued effectiveness of and increasing need for this anti-poverty program. The Committee's adoption of a floor under funding for VISTA was intended to ensure the continuance of the program. Report language was adopted to assure that funding would remain at no less than current levels.

The provisions of H.R. 3292 were contained in H.R. 3982, the Omnibus Reconciliation Act of 1981, as reported by the House Budget Committee on June 19, 1981. During further action on the reconciliation measure, however, new language was substituted.

P.L. 97-35, the Omnibus Reconciliation Act of 1981, extended authorizations of appropriations under the Domestic Volunteer Service

Act through fiscal year 1983. A funding floor for VISTA was maintained in this Act, although at levels substantially less than anticipated in H.R. 3292.

Oversight

In response to reports that the ACTION agency might be attempting to do administratively what Congress had not done legislatively in killing the VISTA program, and in response to questions about the use of agency funds for new initiatives not authorized by Congress, the Subcommittee held a joint hearing on June 9, 1982, with the Subcommittee on Manpower and Housing of the House Committee on Government Operations.

Members questioned agency witnesses concerning the unusually rapid placement of VISTA volunteers, the alleged use of "hit lists" in denying grants to VISTA sponsors and the implementation of agency new initiatives, the Vietnam Veterans Leadership Program and Young Volunteers in ACTION, without Congressional recommendation or legislative mandate.

In addition to the information gathered in connection with the hearing, members of the two subcommittees sought the resources of the General Accounting Office in determining the legality of ACTION policies toward VISTA and in evaluating the agency's overall administration of programs. A major report on the ACTION agency should be available in early 1983.

Also during the second session of the 97th Congress, Subcommittee Chairman Murphy made site visits to a number of VISTA projects and an ACTION runaway youth project in New York City.

EDUCATION OF THE HANDICAPPED ACT

During the 97th Congress the Subcommittee's objective with respect to handicapped education was to maintain current funding levels, regulations and statutory requirements for the Education of the Handicapped Act to ensure that each handicapped child would continue to have the opportunity to receive a free approriate public eduation. Numerous proposals were set forth by the Reagan Administradu ring this session for budget cuts, statutory amendments and deregulation, all of which seriously threatened the quality of educational services for handicapped children.

In April of 1981, the Administration proposed that 44 education programs be merged into two block grants, one to the local education agencies (which included the Education of the Handicapped Act) and the other to the state education agencies, with a funding cut of 25 percent. A joint hearing was held by this Subcommittee and the Elementary, Secondary and Vocational Education Subcommittee on this proposed block grant on May 28, 1981. Witnesses stated consistently that the neglect of educational services to handicapped children that the states exhibited prior to the passage of P.L. 94–142, the Education for All Handicapped Children Act, in 1975 reinforced the need for continued categorical funding of this program.

This effort to repeal the Education of the Handicapped Act through a block grant was not successful, but instead drew sharp criticism from concerned citizens and numerous legislators who argued that the repeal of this vital statute would undermine a decade of progress for handicapped children and their families. Not only was the law not repealed, but the Budget Reconciliation Act of 1981 set a maximum funding level of $1.1 billion for programs under the Education of the Handicapped Act, which was a slight increase over the fiscal year 1981 funding level.

In anticipation of the Administration's fiscal year 1982 Budget Request, a bi-partisan letter was sent to the President on February 4, 1982 signed by 285 House and 59 Senate Members, expressing their support for current levels of funding for P.L. 94–142 and no statutory changes at this time. This letter reaffirmed the fact that historically there has been overwhelming bi-partisan support in Congress for programs for the handicapped.

After failing to repeal the Education of the Handicapped Act and failing to achieve reductions in funding for the Act in 1981, the Reagan Administration was once again in 1982 involved on several fronts in attempts to drastically curtail the federal role in handicapped education. This was evident in: (1) their fiscal year 1983 Budget Request, (2) their proposed amendments to the statute, and (3) their deregulation efforts.

The fiscal year 1983 Budget Request (which was proposed along with a $254 million rescission for fiscal year 1982) would have meant a 30 percent reduction in funding for programs consolidated with P.L. 94–142 and a 17 percent reduction for the consolidation of the discretionary programs. More specifically, this reduction in state grant funding would have meant a $70 reduction in the federal contribution per handicapped child.

Secondly, having been unable to repeal the statute in fiscal year 1981, the Department of Education attempted to enlist Congressional support for a package of amendments to P.L. 94–142 in the spring of 1982. Since they could not obtain a sponsor in either the House or Senate, these amendments were not introduced. This may have been due, in part, to a widely circulated memorandum from the Department of Justice (who reviewed these amendments) which indicated that almost all of these proposed amendments would result in civil rights violations.

Consistent with the Administration's goal of deregulation, the proposed changes in the regulations implementing the Education for All Handicapped Children Act were published in the Federal Register on August 4, 1982. In keeping with the Committee's policy, instituted during the past three years, to closely review regulations for programs under its jurisdiction, the Committee very carefully reviewed these proposed regulations.

The Subcommittee held hearings on these proposed regulations on September 22, 23 and 29 and carefully reviewed the hundreds of letters they received on this issue. They heard not only from advocates and parents, but from governors, members of state boards of education, chief state school officers, state directors of special education, superintendents, school board members, attorneys, special education teachers, regular education teachers and handicapped students themselves. While many of these individuals supported some small changes in the present P.L. 94–142 regulations, they stated consistently that the Administration's proposed regulatory changes would not provide their states and local school districts with more flexibility, they would not relieve administrative burdens, they would not ensure a decrease in litigation under the Act, and most importantly, these proposed regulations would not improve the provision of educational services to our nation's handicapped children. Input received by the Subcommittee strongly indicated that these proposed regulations would do little more than create new problems for state and local governments, school officials and parents of handicapped children.

Since Congress does not have the power to disapprove proposed regulations, House Resolution 558 was introduced by a member of the Subcommittee, Mario Biaggi, which stated that it was the sense of the House of Representatives that these proposed regulations were inconsistent with the Education for All Handicapped Children Act. Further, it stated that if these proposed regulations were to be published in final form, they would be subject to Congressional veto. This resolution was approved by the Subcommittee on September 29, 1982 and reported to the Full House by the Committee on Education and Labor on September 20, 1982 with one amendment. Due to time constraints in the closing days of the session, H. Res. 558 was not considered by the Full House. A similar measure was introduced in the Senate by Senator Lowell Weicker as an amendment to the 1982 Supplemental Appropriations Bill. This bill was vetoed by the President but the veto was overridden by Congress.

As a result of the extreme pressure from Congress and the public at large, Secretary of Education, Terrel H. Bell, announced at the September 29th Subcommittee hearing that he had decided to withdraw six major sections of these proposed P.L. 94–142 regulations. These sections were: (1) parental consent to evaluation or initial placement, (2) least restrictive environment, (3) related services, (4) timelines, (5) attendance of evaluation personnel at IEP meetings, and (6) qualifications of personnel. However, he was unclear on whether he meant withdrawal with no further consideration of these issues or whether he meant withdrawal for further study and possible technical amendments. The Subcommittee members requested some clarification of this issue in the Federal Register as soon as possible.

On October 23, 1982, Subcommittee Chairman, Austin J. Murphy, received a letter from Secretary Bell detailing the Department's plans for the remainder of their regulatory review process. The letter stated the specific sections of the proposed regulations to be withdrawn, that the comment period on the remaining proposed changes would be extended until December 2, 1982 and that a new complete Notice of Proposed Rulemaking would be published in the Federal Register early in the next session. This information did not appear in the Federal Register until November 3, 1982.

With respect to fiscal year 1982 funding, the 1982 Supplemental Appropriations bill provided increased funding for three critical discretionary programs that had been cut significantly in fiscal year 1981. Personnel Development received an increase of $15.7 million, Early Childhood Programs received $7.2 million and Innovation and Development received $3.6 million.

Also, in an attempt to examine the set-aside provisions for handicapped and disadvantaged in the Vocational Education Act in preparation for reauthorization, the Subcommittee held a joint hearing with the Subcommittee on Elementary, Secondary and Vocational Education on this issue on May 5, 1982. Witnesses stated that while the set-aside provisions had not always worked well, some type of provision must be incorporated into the Act to ensure that special needs children have access to these programs.

Under the fiscal year 1983 Continuing Resolution the Education of the Handicapped Act will receive $1.1 billion. This incorporates increases for the state grant program, preschool incentive grants, media services, and innovation and development.

EDUCATION TECHNOLOGY

As a follow up to joint hearings which were held on April 2 and 3, 1980 with the Science and Technology Committee's Subcommittee on Science, Research and Technology on the subject of information technology in education, a request was made by both Subcommittee Chairman to the Office of Technology Assessment (OTA) to investigate the effects which the use of technology was having on our education system.

At the beginning of the 97th Congress, the new Chairman of the Subcommittee, Austin J. Murphy, began working with the staff of OTA to develop guidelines for their research and for the reporting on the information which they gathered.

After nearly two years of study, OTA released the findings of their research during a hearing held on September 14, 1982 which the Subcommittee held jointly with the Subcommittee on Elementary, Secondary and Vocational Education. The report, "Information Technology and Its Impact on American Education" not only describes the sweeping effect which the "Information Age" is having both on our Education settings and the workplace, but also describes the severe problems which we will face if we do not respond to the demands being placed on all of us by this "Technology Revolution". The report further advises that we must all be prepared, and more importantly, trained to adapt to the changes being brought about by this "New Wave" in educating which is encompassing our world.

The efforts of the Office of Technology Assessment's Director and Staff were applauded by members of both Subcommittees at a press conference on December 15, 1982 and it is felt that this document will be a most valuable resource as Congress begins probing the development of technology and its relation to education during the 98th Congress.

NATIONAL INSTITUTE OF EDUCATION

The Omnibus Reconciliation Act reduced the National Institute of Education's budget authority by 25 percent from the original fiscal year 1981 appropriation of $74 million to $55.6 million for fiscal year 1982. As the only education research organization the reductions in the budget for NIE were seen as devastating by the research community.

In response to these reductions, the Subcommittee held an oversight hearing on June 18, 1981 to hear testimony as to the effects which these reductions would have on our education research activities. It was also hoped that the Subcommittee might receive some recommendations as to the priorities for future research and ways in which NIE can best facilitate their efforts in light of their reduced budget. The general sentiment of the witnesses was that the budget cuts would severely hamper activities by education researchers, however, they would continue to guarantee quality research even though there would be several projects which would not be able to begin, and several which would be terminated early. It was felt that the effectiveness of this research organization would fall short of its potential due to lack of funds.

NATIONAL INSTITUTE OF HANDICAPPED RESEARCH

The National Institute of Handicapped Research was established by Congress in 1978 to facilitate research which would be of benefit to handicapped individuals and to coordinate these research efforts among government agencies.

On October 1 and 2, 1981, the Subcommittee on Select Education held joint hearings with the Committee on Science and Technology, Subcommittee on Science, Research and Technology to assess the activities of the Institute since its establishment.

Witnesses from the Department of Education, NASA, and the National Science Foundation highlighted the benefits of research and technology utilization for improving the lives of handicapped individuals. Public witnesses stressed the cost-effectiveness of research in its application to the needs of handicapped persons, and the importance of involving handicapped persons themselves in setting research priorities. Committee members emphasized the need for coordination of federally funded research affecting the handicapped and encouraged an active role for the Interagency Committee on Handicapped Research and its various subcommittees to ensure such coordination.

A staff site visit during the 97th Congress was conducted at a National Institute funded Research Engineering Center in California. The Center is successfully designing and utilizing highly specialized equipment for the evaluation of the ability of severely disabled persons to drive.

REHABILITATION ACT

Over the last 61 years the federally funded rehabilitation program has provided services to more than 20 million handicapped persons, helping them become independent, tax-paying citizens. In spite of the program's long history of success and proven cost-effectiveness, during the 97th Congress, the Administration proposed the repeal of the Rehabilitation Act and the inclusion of the program in a block grant with funding cuts of 25%.

The Subcommittee worked during the reconciliation process of 1981 to assure the continuation of the program and to prevent reductions in funding. In the Omnibus Reconciliation Act of 1981, P.L. 97-35, new authorization levels were set for all funding sections in the Rehabilitation Act and funding authority was extended through FY 83. The extension of funding, generally at increased levels, demonstrated Congress' strong support of the Rehabilitation Act in its present categorical form.

Also during the 97th Congress, Subcommittee staff made site visits to rehabilitation programs in seven states: State general agency programs in Arkansas and New Hampshire; state agency programs for the blind and for the deaf in Arkansas; medical rehabilitation, physical and occupational therapy programs in Michigan; a rehabilitation hospital in California; a rehabilitation training, sheltered workshop and work activities center facility in Minnesota; a center for independent living and an independent living evaluation unit in California; a sheltered workshop in Maryland; a training program for the developmentally disabled in Washington state; a Research and Training Center focused on rehabilitation counseling in Arkansas; a Comprehensive Rehabilitation Center in Arkansas; and a research utilization project in New Mexico.

SELECT COMMISSION ON VOLUNTARY SERVICE OPPORTUNITIES ACT OF 1982

The Subcommittee on Select Education held two hearings on H.R. 2500 during the 97th Congress on April 30, 1981, and August 11, 1982. This bill, as introduced by Representative Leon Panetta on March 12, 1981, establishes a select commission to examine the issues associated with voluntary service. In addition, the bill authorizes $750,000 for the fiscal year ending on September 30, 1984.

H.R. 2500 establishes a twenty-one member commission to study all the various components available to create a national volunteer service. The vast and essentially untapped resources available should be coordinated and utilized to meet national and local needs. A commission could initiate greater leadership on the part of the Federal Government by making recommendations to the President and Congress for a national policy on voluntary services.

The Subcommittee reported the bill to the Education and Labor Committee which passed H.R. 2500 on September 30, 1982 by a vote of 20–3. The bill, however, was not scheduled for consideration by the House of Representatives due to the time restraints of the last month of the 97th Congress. It is expected that a similar bill will be considered by the Subcommittee in the first session of the 98th Congress.

REPORT OF THE ACTIVITIES OF THE SUBCOMMITTEE ON LABOR-MANAGEMENT RELATIONS DURING THE 97TH CONGRESS

PHILLIP BURTON, *Chairman*

WILLIAM "BILL" CLAY	EUGENE JOHNSTON
WILLIAM D. FORD	JOHN N. ERLENBORN
MARIO BIAGGI	KEN KRAMER
DALE E. KILDEE	MILLICENT FENWICK
TED WEISS	STEVE GUNDERSON
PETER A. PEYSER	
CARL D. PERKINS, Ex Officio	

FREDERICK L. FEINSTEIN, *Counsel*

JURISDICTION OF SUBCOMMITTEE ON LABOR-MANAGEMENT RELATIONS

The Subcommittee has jurisdiction over labor-management relations generally and over matters relating to both public employee benefit plans of state and local governments, and private employee benefit plans; and over the following specific laws:

(1) The National Labor Relations Act, as amended;

(2) The Labor-Management Reporting and Disclosure Act of 1959;

(3) The Service Contract Act of 1965;

(4) The Employee Retirement Income Security Act of 1974;

LISTING OF SUBCOMMITTEE ACTIVITIES

(*A*) *Hearings*

During the 97th Congress, 75 measures were referred to the Subcommittee on Labor-Management Relations. The subcommittee met a total of 20 times, during which it considered 9 of the measures. Of the 20 meetings, 3 were briefings, 11 were hearings in Washington, D.C. and 6 were field hearings.

(1) Legislative Hearings

January 7–8, 1982: H.R. 4046—Hawaii Pre-emption.

February 3 and February 8, 1982: H.R. 4928—PERISA by Erlenborn; and H.R. 4929—PERISA by P. Burton.

October 14, 1982: H.R. 6462—METS (Multiple Employer Health Insurance Trusts); H.R. 1641—ERISA (discrimination against women); and H.R. 3632—Pension Losers.

December 13, 1982: H.R. 1641—ERISA (discrimination against women); H.R. 1979—Retirees bargaining; H.R. 3632—Pension Losers; H.R. 6226—ERISA (civil enforcement by participants); and S. 1785—Labor Racketeering.

(2) Oversight Hearings

November 4, 1981: Service Contract Act.

November 16, 1981: ERISA reporting and disclosure procedures.

December 8, 1981: Consumer Price Index and Effect of Budget Cuts on BLS.

December 9, 1981: ERISA reporting and disclosure procedures.

December 10, 1981: Service Contract Act.

January 29, 1982: ERISA reporting and disclosure procedures.

March 5, 1982: METS.

April 1, 1982: Payment of Medicare funds to "management consultants".

June 16, 1982: Service Contract Act (to consider report).

August 31, 1982: Pension investment in housing industry.

(*B*) *Bills reported or discharged to Committee on Education and Labor*

H.R. 4928—Public Employee Pension Plan Reporting and Accountability Act (Subcommittee discharged May 11, 1982).

H.R. 4929—Public Employee Pension Plan Reporting and Accountability Act (Subcommittee discharged May 11, 1982).

(*C*) *Bills reported to House*

H.R. 4928—Public Employee Pension Plan Reporting and Accountability Act (Reported to House on May 17, 1982; H. Rept. 97–529).

H.R. 4929—Public Employee Pension Plan Reporting and Accountability Act (Reported to House on May 17, 1982; H. Rept. 97–528).

(*D*) *Bills under subcommittee jurisdiction passed by Congress*

H.R. 5470—Periodic Payment Settlement Act of 1982—Title II, Secs. 201 (relating to the Hawaii Prepaid Health Care Act under the Employee Retirement Income Security Act of 1974) and 202 (relating to multiple employer welfare arrangements under the Employee Retirement Income Security Act of 1974), passed House by voice vote Sept. 20, 1982; passed Senate with amendments by voice vote Oct. 1, 1982; passed House with amendments Dec. 13, 1982; Conference Report 97-984 adopted by House Dec. 21, 1982 and adopted by Senate Dec. 22, 1982.

(*E*) *Field investigations*

(1) Subcommittee staff conducted onsite investigations of Internal Revenue Service and Department of Labor pension facilities in Dallas and Austin, Texas. Subcommittee staff conducted onsite discussions on pension issues with Department of Labor officials in San Francisco, California. Subcommittee members and staff participated in onsite discussions on pension issues with officials in the National Office of the Internal Revenue Service, Department of Labor and Pension Benefit Guaranty Corporation.

(2) Together with the Subcommittee on Labor Standards, the Labor-Management Relations Subcommittee has initiated an investigation by the GAO into possible underpayments to pension and welfare funds in California. A report on the investigation is expected in the near future.

(*F*) *Subcommittee reports*

(1) *Legislative Reports.*—97-528 Public Employee Pension Plan Reporting & Accountability Act of 1982 (H.R. 4929); and 97-529 Public Employee Pension Plan Reporting and Accountability Act of 1982 (H.R. 4928).

(2) *Oversight Reports.*—Report of the Subcommittee on Labor-Management Relations on the Proposed Service Contract Act Regulations. (Committee Print); and Staff Report of the Subcommitee on Labor-Management Relations on the Effects of Budget Cuts on the Bureau of Labor Statistics and Proposed Changes in the Consumer Price Index (Committee Print).

(*G*) *Reports referred to the subcommittee*

(1) On June 21st, 1982 the GAO issued a Subcommittee initiated report entitled "Concerns Regarding Impact of Employee Charges Against Employers for Unfair Labor Practices." The report was based on a study which examined the effectiveness of existing remedies under the National Labor Relations Act (NLRA) when applied to illegally discharged workers. The report found that unions were more successful in campaigns in which no employee discrimination occurred. The report's findings also included substantial evidence that a worker who has been illegally fired is not likely to again engage in union activity. (Report HRD-82-80)

(2) On July 21, 1982 the GAO issued a Subcommittee initiated report entitled "Assessment of Federal Agency Compliance with the Service Contract Act." The report found pervasive and substantial non-compliance with the Service Contract Act. There was evidence

of non-compliance in 20 of the 22 Federal installations reviewed and a failure to apply the Act in more than one third of the contracts where coverage was required. (Report HRD-82-59)

(3) On October 19, 1981, the GAO issued a Subcommittee initiated report entitled "Better Management of Private Pension Plan Data Can Reduce Costs and Improve ERISA Administration." The report was critical of all three ERISA agencies, the data collection processes and utilization procedures and found that information required to be reported annually by private pension plans is not being effectively, efficiently or economically managed. In addition, there is no assurance that all plans are reporting as required, that the reports are complete and accurate or that all insured plans are paying premiums. The report cited lack of IRS followup on critical items if informtion, lack of coordination among the Departments of Labor and the Treasury and the Pension Benefit Guaranty Corporation, and inadequate PBGC controls over premium payment data as major problems with the current enforcement of ERISA. (Report HRD-82-12)

(4) Other GAO Reports referred to the Subcommittee:

(a) "Tax Revenues Lost and Beneficiaries Inadequately Protected When Private Pension Plans Terminate," HRD-81-117, September 30, 1981

(b) "Multiemployer Pension Plan Data Are Inaccurate and Incomplete." HRD-83-7, October 25, 1982

(c) "A CPI For Retirees Is Not Needed Now But Could Be in the Future," GGD-82-41, June 1, 1982

(d) "Disclaimer of Opinion on the Financial Statements of the Pension Benefit Guaranty Corporation for the Fiscal Year Ended September 30, 1980," AFMD-82-42, June 23, 1982

DESCRIPTION OF SUBCOMMITTEE ACTIVITIES

Legislative

Public Employee Pension Plan Reporting and Accountability Act

The Subcommittee held two days of hearings (February 3 and 8, 1982) in Washington, D.C. on H.R. 4928 and 4929, bills to establish reporting and disclosure requirements and fiduciary standards for employee benefit plans of state and local governments. Representatives of major public employee unions, participant, retiree and taxpayer groups strongly supported the thrust of both bills as essential to the protection of public employee pensions and urged the Subcommittee to move the legislation as expeditiously as possible. They expressed concern that additional cuts in the federal budget and the Administration's proposed "New Federalism" initiatives will put a greater strain on state and local government resources and offer greater temptation to financially strapped cities and states to tap the pension funds for purposes other than the payment of retirement benefits.

Witnesses representing state legislators, the governors, finance officers, and the City of New York, and the New York State Teachers Retirement System told the Subcommittee that federal legislation was unnecessary and undesirable arguing that even if there were problems with respect to some retirement systems, the state and local governments were moving quickly to remedy them.

Other witnesses, who are involved in research and writing about state and local plans disagreed, noting that little or no reform had been undertaken by the states and cities which needed it most. In addition, most of the "reform" which had taken place had been in the nature of reduction of benefits, not greater disclosure to participants or the safeguarding of plan assets through fiduciary standards.

The Subcommittee was discharged from further consideration of the bills on May 11, 1982 and the Education and Labor Committee reported the amended bills to the House on May 17, 1982. H.R. 4928 was pending before the Ways and Means Committee and no floor action was scheduled on H.R. 4929 (Union Calendar No. 320) when the Congress adjourned.

Hawaii Prepaid Health Care Act

The Subcommittee held two days of field hearings on H.R. 4046, a bill to exempt the Hawaii Act from ERISA's preemption provisions in Honolulu, Hawaii on January 7 and 8, 1982. The U.S. Supreme Court let stand a 9th Circuit Court of Appeals decision striking down the Hawaii Act and the members of the delegation urged Congress to act quickly to preserve the Hawaii Act which guarantees 98 percent of all workers in the state comprehensive prepaid health care insurance coverage. Representatives of the governor, the state legislature, unions, health insurance carriers, consultants, working women's groups, and private citizens echoed this testimony and presented the Subcommittee with numerous examples of the detrimental effect the Supreme Court ruling would have on Hawaiian workers.

Only two witnesses representing employer representatives who benefited from the Court's decision expressed a contrary view, arguing that most employers would continue to offer workers some form of health insurance despite the preemption.

The substance of H.R. 4046 was enacted as Section 201 of Public Law 97-   (H.R. 5470).

Multiple Employer Health Insurance Trusts (METs)

On March 5, 1982, the Subcommittee held one day of oversight hearings in Chicago, Illinois to investigate the failure of some METs to pay beneficiaries' claims. This failure is part of a larger problem with ERISA's preemption language that permits certain self-funded health insurance trusts to evade both state and federal regulation.

Both the Illinois Attorney General and the Illinois Insurance Commissioner urged Congress to reevaluate and clarify the extent to which ERISA preempts state insurance laws. These witnesses indicated that their attempts to shut down fraudulent multiple employer trusts were often thwarted when the trusts claimed to be ERISA trusts beyond the reach of state law. By the time a determination can be made by the Labor Department that they are not ERISA trusts, many become bankrupt, thus leaving workers without health insurance coverage. A panel of individuals whose unpaid claims ranged from $1,500 to $143,000 told the Subcommittee how they had been led to believe that their insurance claims were covered and that these trusts were solvent.

All the witnesses, including those representing the Labor Department, the National Association of Insurance Commissioners, insurance companies and actuaries, supported giving the states the primary role in regulating the solvency of these trusts.

Subsequent to the hearing, H.R. 6162 was introduced and a legislative hearing on that bill was held in San Francisco, California on Oct.

14, 1982. The text of H.R. 6462 was enacted as Section 202 of Public Law 97- (H.R. 5470).

Other pension bills considered by the subcommittee

On October 14th and December 13th, 1982, the Subcommittee held legislative hearings on several pension bills pending before the Subcommittee. The bills considered during these hearings were: H.R. 1641 which addresses issues of discrimination against women under existing pension law, H.R. 1979 providing that bargaining on behalf of retirees is a mandatory subject of collective bargaining, S. 1785 providing for increased penalties for those found guilty of violating ERISA and the Labor-Management Reporting and Disclosure Act, H.R. 3632 concerning compensation of retirees whose pension plans terminated prior to ERISA, H.R. 6226 providing a right of action in the Federal courts for wronged participants of pension plans and H.R. 6462 concerning multiple employer trusts (see above). Witnesses included the Secretary of Labor and several members of Congress. No further action has been taken on these bills.

Oversight

Service Contract Act

On November 4th and 5th and December 10th, 1981, the Subcommittee held three days of oversight hearings to consider regulations proposed by the Department of Labor concerning the Service Contract Act. Witnesses included representatives of labor, management, and the Department of Labor. On June 16th, 1982, the Subcommittee, by voice vote, approved a report, together with minority views that was sharply critical of the proposed regulations. To date no final regulations have been proposed by the Department of Labor concerning the Service Contract Act.

Bureau of Labor Statistics

On December 8th and December 9th, 1981, the Subcommittee held two days of oversight hearings concerning the impact of budget cuts on the operations of the Bureau of Labor Statistics as well as the proposed change in the computation of the Consumer Price Index. In addition to the Director of BLS, the Subcommittee heard witnesses from several labor unions, senior citizen groups, and other interested parties. In December of 1982, Subcommittee staff issued a report based on the hearings, together with minority staff views.

Funding of anti-union activities under medicare

On April 1, 1982, the Subcommittee held an oversight hearing concerning the payment of anti-union consultants with medicare funds. The hearing was held in response to a change initiated by the Administration in the interpretation of the Medicare Provider Manual. Under the new interpretation, a hospital's payment for the activities of anti-union consultants was to be considered a reimbursable expense. Witnesses at the hearing included representatives of the Health and Human Resources Administration, labor unions, the American Hospital Association and senior citizen groups. In September, 1982, as part of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), the administration policy was reversed by law. Expenditures for anti-union activity are no longer reimbursable under medicare.

Pension investment in construction industry

On August 31st, 1982, the Subcommittee held an oversight hearing in San Francisco, California concerning possible means of stimulating pension investment in the construction industry. Witnesses included representatives of the construction industry, labor, investment managers, and public interest groups. Emphasis was given to means of promoting such investments within existing ERISA fiduciary standards.

ERISA reporting and disclosure

The Subcommittee held three days of oversight hearings on ERISA reporting and disclosure issues (November 16, 1981 in New York, New York; December 9, 1981 in Washington, D.C.; and January 29, 1982 in San Francisco, California). Witnesses representing plan participants, retirees, women's organizations and unions urged the Subcommittee to maintain the current forms of reporting and disclosure required under ERISA, to legislatively mandate improvements in the quality of information available to participants and retirees, and to demand better enforcement by the ERISA agencies of current rules. Witnesses representing large corporations, banks, insurance companies and plan administrators advocated substantial reductions in the amount of information which should be disclosed and loosening up of the current strict ERISA requirements related to distribution of information to participants, beneficiaries and retirees.

Publications available from the Subcommittee on Labor-Management Relations

1. H.R. 4928 (Report No. 97-529)—PEPPRA (formerly called PERISA).
2. H.R. 4929 (Report No. 97-528)—PEPPRA (formerly called PERISA).
3. Oversight hearings on the Service Contract Act (November 4, 5 and December 10, 1981).
4. Report of the Subcommittee on Labor-Management Relations on the Congressional Oversight Hearings Concerning Proposed Service Contract Act Regulations (printed July 1, 1982).
5. Report of the Subcommittee on Labor-Management Relations on the Effects of Budget Cuts on the Bureau of Labor Standards and Proposed Changes in the Consumer Price Index.
6. Oversight Hearings on ERISA Reporting and Disclosure Procedures.
7. Field Hearings on Preemption of Hawaii Prepaid Health Care Act.
8. Oversight Hearing on Problems of Multiple Employer Health Insurance Trusts.
9. Oversight hearing concerning Payment of Medicare Funds to Management Consultants.
10. Oversight hearings concerning Pension Investment in Housing Industry.
11. Hearing concerning Pension Legislation: H.R. 6462, H.R. 1641 and H.R. 3632.
12. Hearing concerning Pension Legislation: H.R. 1641, H.R. 1979, H.R. 3632, H.R. 6226 and S. 1785.

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